



Jan
Feb

23 January
Dialogue forum "Globalisation and digitalisation – the world in the fast lane?"
Page 7



22 February
Dialogue forum "Networked, innovative – How poorer countries can benefit"
Page 7

Mar

20 March
Dialogue forum „Blackout – How stable are our systems?"
Page 7

21–22 March
Inclusive Insurance Learning Sessions: Public Private Dialogue in Colombo, Sri Lanka
Page 26



March
Start of construction on 15 more CloudFisher collectors on Mount Boutmezguida, Morocco
Page 15

Apr



9–13 April
Seminar week on "Global Change Management" with the University of Applied Sciences Eberswalde in Munich
Page 11

12 April
Dialogue forum "Digital Dictatorship – Prisoners in the new world?"
Page 7

17–19 April
Learning Sessions: 10 Years of Evolution in Inclusive Insurance in Bogotá, Colombia
Page 27

May
June
July

16 May
Dialogue forum "Work 4.0 – Of robots and people"
Page 7



22–25 May
Gibika final workshop and fieldtrip in Dhaka, Bangladesh
Page 32

18–22 June
Project seminar on "Climate protection and livelihood security" at the University Erlangen, Department of Geography
Page 11

21 June
Munich Energy School receives Georg Salvamoser award for "Young Energy"
Page 10

Aug
Sep

1 September
*2019 Risk Award on
"Coastal Resilience":
start of application*
Page 35

17 September
*Seminar for rural Develop-
ment (SLE) at the Humboldt
University of Berlin
"Development and Insurance
Mechanisms"*
Page 11



24–28 September
*Summer Academy "Global
risk and adaptation futures –
What role is played by
urbanisation?"*
Page 12



August
*2017 RISK Award Nepal
EpiNurse project:
reflecting on impacts*
Page 34

Oct



1 October
*Klimaherbst 2018: Dialogue
forum special "Energy turn-
around and digitalisation –
a step forward for climate
protection, a step back in the
fight for resources?"*
Page 6

16 October
*Official opening ceremony
for the fog net installation
on Mount Boutmezguida,
Morocco*
Page 15

October
*Gibika Report: Resilience in
Bangladesh. A five year
"research to action" project
is coming to an end*
Page 32

Nov
Dec

14th International Microinsurance Conference

6–8 November
*14th International Conference
"Inclusive Insurance
for Emerging Markets"
Lusaka, Zambia*
Page 24

14 November
*Dialogue forum special
"Innovative. Creative. Fair?
Chances and risks of the
digitalisation"*
Page 6

18 November
*Module in the Climate
Master at the University
of Bonn/UNU-EHS Bonn
"Climate Risk Insurance"*
Page 11

3–14 December
*UN-Climates Change Confer-
ence COP 24 in Katowice,
Poland: presentation of
projects and publications
regarding climate change*
Page 6

Review of 2018

Editorial	1
-----------	---

Climate change and education

The first large-scale social impact blockchain application made significant strides in 2018 <i>Bernhard Kowatsch</i>	2
Project overview Climate change and education	6
2018 dialogue forums Digital. Innovative. Fair? The future on our doorsteps	7
Energy School Munich – Prize for active climate protection	10
Joint university projects 2018	11
2018 Summer Academy Global risks, environmental changes and adaptation – What role does urbanisation play?	12

Water

Project overview Water	14
Water is life – How fog collectors are improving the quality of living conditions in Morocco	15
FogNet Alliance – Competence centre takes up work	17

Inclusive Insurance

Insurance for everyone – Digitalisation as the key <i>Dirk Reinhard</i>	18
Project overview Inclusive Insurance	22
InsurTech opens up new opportunities	23
14th International Microinsurance Conference An essential pillar of sustainable development	24
Sri Lanka Learning Sessions Creating innovation through the “sandbox approach”	26
Colombia Learning Sessions Decade of progress	27
Field trip Strong women in Zambia – Insurance is a key factor	28

Disaster prevention

Project overview Disaster prevention and resilience	30
Research and action	31
Gibika – Field research results for greater resilience	32
2017 RISK Award – How nurses in Nepal are modernising the healthcare system	34
2019 RISK Award – Greater resilience for coastal regions	35

Internal foundation issues

Environmental performance 2018	36
Global partners	37
Board of Trustees, team and committees	38
Imprint, sources and picture credits	39
Publications 2018	40
Current projects 2018 Preview 2019	

Title: A young boy in Bangladesh worriedly watches the coastline in his home town. The population is suffering from the heavy erosion washing away their land.

Dear Readers,

We look back on an eventful 2018. It was a year marked by trade wars, social unrest (as in France), and an unrelenting debate about migration in Europe. Important areas of sustainability, such as climate change and poverty reduction, were temporarily pushed into the background, while another complex set of issues — innovation, digitalisation and artificial intelligence — stirred up further controversy and uncertainty. We followed the discussions surrounding these topics very closely, as they play an increasingly important role in our projects. We planned the dialogue forums accordingly (Page 7). Digitalisation is also gaining significance in poverty reduction through insurance solutions. It can become a game changer. Our 14th International Conference on Inclusive Insurance in Zambia in November saw a great deal of debate over the opportunities and risks of digitalisation (Page 24).

In 2018, we consistently continued to pursue important topics such as climate change and environmental education (Page 6). We also launched a new series of Summer Academies for young researchers, planners and decision-makers. Together with the UN University in Bonn and the UNFCCC World Climate Secretariat, we are investigating how the world can improve adaptation to environmental change. Their findings can be used to organise climate policy more efficiently (Page 12).

Mobile phones once again are the focus of our current RISK Award project (Page 34). Health care in Nepal can be optimised with the help of an app. Further to the southeast, in Bangladesh, we completed our Gibika project after a period of more than five years (Page 32). In May, we were able to see at first hand that our training courses for improved storm warning had reached the people in the villages during a field visit. And, while we are on the subject of project completion, we have some very good news for you. Our joint fog net project with WaterFoundation Ebenhausen in Morocco has also been successfully implemented. The fog nets installed there generate 35,000 litres of drinking water and more every day during the fog season from December to June. At least 15 villages benefit from the new water supply (Page 15). An expansion of the facilities is planned.

Wishing you a stimulating read.
Thomas Loster



PAUL DESANKER
is a member of the UNFCCC secretariat (UN Climate Change) and is responsible for countries' adaptation plans. At our Summer Academy, he explained how scientific findings are influencing current climate policy.
Page 12

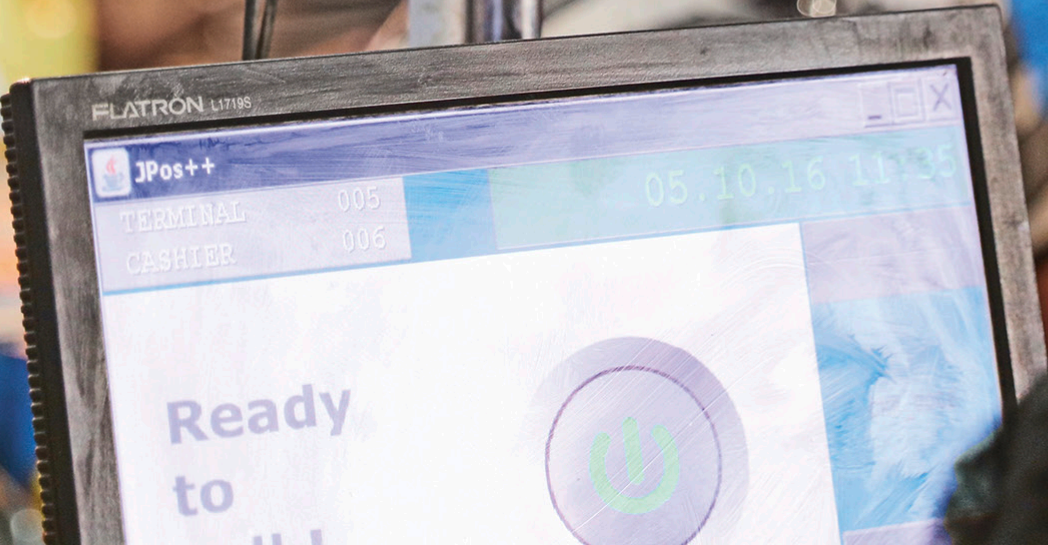


JAMILA BARGACH
The director of Dar Si-Hmad has done it: thanks to her dedication, the world's largest fog collector facility opened in autumn of 2018. On each day with fog, it harvests roughly 35,000 litres of drinking water.
Page 14



MAUREEN SUMBWE
is the executive director of the Zambian Federation of Associations of Women in Business. She supports start-ups, is active in social entrepreneurship, and even sells funeral insurance. We got to know some of her customers during a field trip.
Page 28

Shopping via iris scanning is becoming possible with the help of blockchain technology. The UN World Food Programme's (WFP) innovative Building Blocks project is using this technology to make life easier for Syrian refugees in Jordan.



The first large-scale social impact blockchain application made significant strides in 2018

By Bernhard Kowatsch

In 2018, a collaboration between the World Food Programme (WFP)'s Building Blocks project and UN Women was announced, continuing to help more than 100,000 Syrian refugees to take full advantage of cutting-edge blockchain technology.





BERNHARD KOWATSCH
Head of the World Food Programme
Innovation Accelerator

Blockchain has been the global hype for what seems like years now, especially as the rally around the Bitcoin made its way through the media. But more and more people seem to wonder, will there ever be any tangible benefits for business and society? Applications thus far often seem to be too complex. But indeed, the technology is gaining importance for social and humanitarian work.

At the United Nations World Food Programme (WFP), we have witnessed the impact of real-life blockchain applications in projects that we support at the WFP Innovation Accelerator in Munich, Germany. At the Accelerator, we specifically identify, support and scale disruptive innovations, such as blockchain. We see disruptive innovations as those that have the potential to significantly change traditional products and related services, or to even completely replace them on the international market. The overarching aim of using blockchain technology, in our case, is to help get the number of hungry people from 821 million down to zero by 2030!

As part of WFP's Building Blocks project, we are using blockchain as a means of making cash transfers to refugees in Jordan — who are affected by the war in Syria — more efficient, transparent and secure. It also improves collaboration with other aid organisations. The refugees no longer receive their cash benefits via bank transfers or withdrawals. Today they can access the financial aid via an iris-scan. The iris scan is the refugees' key to their new digital "wallet" which is stored on a blockchain platform called Ethereum.

What's exciting is that Building Blocks started with a pilot in Pakistan of only 100 people, transitioning to a second pilot just five months later of 10,500 people in Jordan, and just six months later already reached more than 100,000 individuals in Jordan alone. By December 2018, over 30 million US dollars in benefits have been transferred via this system. To date, financial transaction costs have been significantly reduced (by over 98%), with monthly savings of around 40,000 US dollars. Perhaps more importantly, it also makes privacy protection of individuals stronger, as we no longer need to share sensitive data with third parties such as banks or other financial service providers.

But the real reason why blockchain is so exciting for us is the potential for better collaboration with other UN agencies and NGOs. This step has now become reality in late 2018, as UN Women has joined WFP on our Building Blocks platform in Jordan, to empower women in crisis situations. With UN Women and other humanitarian partners distributing their assistance through the Building Blocks system, WFP anticipates that the benefits of blockchain won't only be shared across the humanitarian sector, but that its social impact could be even broader.

WFP also aims to use the Building Blocks system to support the distribution of cash assistance to the wider Syrian refugee community in Jordan. This will allow people to choose between e-vouchers and cash back at retailers and ATMs. This should result in an additional 400,000 refugees accessing their assistance through the blockchain, though the level of savings achievable this way has yet to be determined.

But all of this is just the start. At the WFP Innovation Accelerator, we have had two more teams participate in recent innovation bootcamp programmes. One is about digitising the lading bills for supply chains from the port of Djibouti into Ethiopia on a blockchain. Another startup called AgUnity uses the technology for streamlining smallholder farmers' transactions with cooperatives in Ethiopia. We are looking forward to the first results of these projects. Furthermore, we hope that additional startups or companies will reach out to us with bold ideas that can help transform emergency assistance and sustainably end hunger.

The Innovation Accelerator and Munich Re Foundation are in close contact. We exchange ideas, and Bernhard Kowatsch, the Head of the Accelerator, took part in the MRF's 2018 dialogue forum series. Both organisations deal with innovative solutions in the context of climate change, people at risk and sustainability.

The WFP Innovation Accelerator

The WFP Innovation Accelerator identifies, nurtures and scales bold solutions to hunger globally. We support WFP innovators and external start-ups, companies and NGOs through financial support, hands-on entrepreneurial experts and a global field

reach. We believe the way forward in the fight against hunger is not necessarily in building grand plans, but identifying and testing solutions in an agile way. The Innovation Accelerator is a space where the world can find out what works and what doesn't in addressing hunger — a place where we can be bold, and fail as well as succeed.

More than 80,000 people live in the Zaatari refugee camp in Jordan. Many of the children have never known a life outside the camp. The world's second largest refugee camp is slowly turning into a permanent city.



Project overview

Climate change and education



2018 dialogue forums

*"Digital. Innovative. Fair?
The future on our doorsteps"*

Munich, January – May 2018
5 events with over
1,000 participants

Dialogue forum special

*"Energy turnaround and
digitalisation – a step forward
for climate protection, a step
back in the fight for resources?"*

Munich, 11 October 2018
80 participants
Project partner: Network
Klimaherbst München e.V.

*"Innovative. Creative. Fair?
Chances and risks of the
digitalisation"*

Munich, 14 November 2018
100 participants
Project partner: Strascheg
Center for Entrepreneurship at
the Munich University of
Applied Sciences Munich

Presentations on foundation's topics

55 specialist presentations
from the foundation staff at
universities and schools, at
conferences and other events

2018 Summer Academy

*"Global risks, environmental
changes and adaptation –
What role does urbanisation
play?"*

Bonn, 24–28 September 2018
40 participants
Project partners: UNU-EHS,
UNFCCC

School projects

Energy School Munich

Munich, 2017/2018 school year
400 participating pupils from
primary and secondary schools
Project partner: Green City e.V.

Joint university projects

*University of Applied Sciences
Munich: Seminar on "Water,
climate, environment – sustain-
able management strategies for
global challenges"*

Munich, ongoing seminar in
winter and summer term
15 students

*Eberswalde University for
Sustainable Development:
Themed week of the "Global
Change Management"
Master's course*

Munich, 9–13 April 2018
20 young scientists

*Project seminar at the University
of Erlangen, Department of
Geography, "Climate protection
and security for the livelihood"*

Erlangen, 18–22 June 2018
20 students

*Seminar for rural Development
(SLE) at the Humboldt University
of Berlin, "Development and
Insurance Mechanisms"*

Berlin, 17 September 2018
20 participants

*UNU-EHS – University of Bonn
Joint Master: Seminar "Climate
Risk Insurance"*

Bonn, 14 November 2018
25 international Master students



**"The younger
generation of today
are those who will
be affected most
of climate change."**

Award jury "Young Energy" of the
Georg Salvmoser Foundation



Digitalisation is the megatrend of our times. It is changing our lives, the way we communicate and work. And this is only the beginning. Today, we are only just catching a glimpse of the consequences – both positive and negative. However, concerns about us increasingly becoming “transparent citizens” are justified.

2018 dialogue forums Digital. Innovative. Fair? The future on our doorsteps

Top: The topics of digitalisation, artificial intelligence and innovation dominated the 2018 dialogue forums.

Bottom: Sami Haddadin, professor of robotics, and Kerstin Jürgens, professor of microsociology, discuss with moderator Patrick Illinger from the Sueddeutsche Zeitung (left) about the effects of digitalisation on the working environment.



The fact that we today lead significantly more comfortable lives than our ancestors is a result of technological progress. In the past, industrialisation was the driving force behind technical innovations and human development. Today it is artificial intelligence, networked digital systems and robotics. For this reason, Munich Re Foundation decided to dedicate its 2018 Dialogue Forums entirely to the topics of digitalisation and innovation. Over the course of five evening events, fifteen experts in total discussed a number of promising options. Those varied in form of multiple perspectives as well as in identifying possible stumbling blocks that must be overcome.

In the developing countries for example, digital jobs could make it possible to give employment to millions of people. At the same time, however, inefficient regulations and a lack of experience with digital business models in these regions can foster a Wild West mentality. Once again to the detriment of the weakest in society. And, as always, it is mostly the privileged who are able to pursue a career with the help of digitalisation. Technology alone will therefore not succeed in solving social and political problems in the developing countries in the future.

“Robotics and artificial intelligence are facing a quantum leap.”

PROF. SAMI HADDADIN
Professor of Robotics and System
Intelligence, TU Munich

THREAT OR PARTNER?

In the developed world, concerns are spreading over the growing influence of the so-called data-mining giants: Google, Facebook and the like. Demands to regulate the concentration of corporate power gained little response in politics so far. It is also problematic that many users readily disclose their personal data for convenience or cost reasons, without knowing what might happen to it.

In the industrial world of work, technological progress is giving rise to new fears. Just like globalisation, it is also bringing about strong structural changes. Old knowledge and skills are being robbed of their value. If a machine, a computer or a robot can perform a task better and more efficiently, not only jobs but also social status will soon too be at stake. However, experts expect that digitalisation will create more jobs than it destroys.

A threat of a completely different nature is posed by cybercriminals. The potential for abuse due to the increasing complexity and interdependence of the systems is growing. It is threatening the social life of the community. Nowadays a laptop can do more damage than a rocket.



Astrophysicist and philosopher Harald Lesch also sees great risks in digitalisation. We may only partially understand the processes in intelligent systems, there is a threat of loss of control.

RETHINKING CYBER SECURITY

Given the many vulnerable points of attack, such as government institutions or infrastructure, no-one can guarantee 100% security. This is also because the Internet of Things (IoT) is expected to connect some 50 billion devices and sensors by 2020. In addition, there are increasingly numerous and more effective ways of spreading false reports to deceive and manipulate public opinion. The concept of cyber security therefore needs to be reconsidered and worked out.

This includes people in the connected world being able to rely on the protection of their privacy. In addition to the responsibility of the users themselves, reliable regulations are required to curb the appetite of private companies and government agencies for peoples' personal information. China, for example, has already begun implementing a scoring system that monitors and evaluates the behaviour of all its citizens.

CREATION OF EARLY AWARENESS

Because digital offerings increasingly demand our attention, our perception and thought processes are changing – with far-reaching consequences. The stress potential is growing. The number of people with health problems due to increasing digital progress and cumulated pressure which comes along with trying to keep up with the pace of innovation, is rising. It is possible to take corrective action, however. If we begin early enough to introduce our children to the new technology, they will learn to handle it more efficiently, and more ethically. They will then be able to use it as a constructive tool. This will require greater investment in education and greater efforts to make people more aware of the dangers in the digital world.

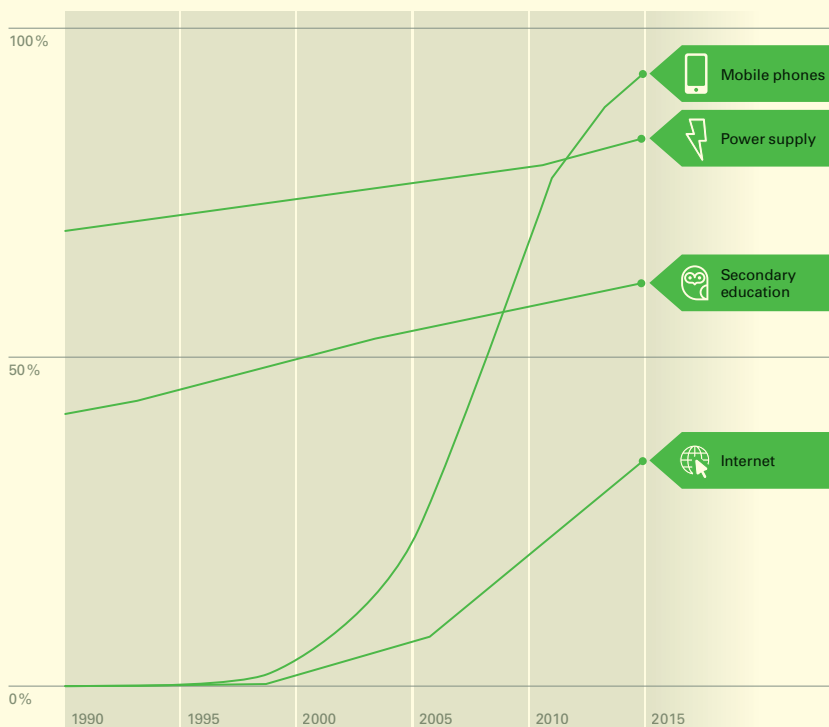
Digitalisation will change our society profoundly. It is up to us how we deal with a world that is constantly reinventing itself. The future is already on our doorsteps.

You can find a detailed summary of the Dialogue Forums on our website and in our Positions 2018 publication.

"Connected and innovative –
How poor countries benefit from digitalisation"
22 February 2018

The ones left behind are catching up

The digital transformation is also in full swing in developing countries. Particularly impressive is the growing proliferation of mobile phones since the turn of the millennium. But the Internet is also gaining importance. Still, only with a good education can the advantages of digitalisation be fully exploited. Therefore it is hopeful sign that a growing number of people in developing countries are attending secondary schools.



Dissemination of technology and
education in developing countries
(percentage of total population)

Source: The World Bank (2016)

The Green City project, Energy School Munich, received another award in 2018. The project team was presented with the prize in the special “Young Energy” category by the Georg Salvamoser Foundation on 21 June. Munich Re Foundation has been supporting this project for many years now and, consequently, also promotes environmental education in Munich’s schools.

The €25,000 prize is one of the most coveted environmental awards in Germany. The three winners received their prizes in Munich at the world’s leading trade show for the solar industry – the Intersolar. The prize is awarded by the Georg Salvamoser Foundation in cooperation with the town council of Freiburg. It supports people and institutions who, through their work, advance the supply of renewable energies and become role models for others. Explaining its decision, the jury said: “Today’s young generation will be most heavily affected by the progressing climate change. It is therefore important to make children and young adults aware of the topics of renewable energy and climate protection at an early age.” Green City received the “Young Energy” award and prize money of €5,000 for its work in this area.

During interactive workshops and exciting excursions, primary and early secondary school children learn all about sustainable energy generation, energy preservation and climate protection. The emphasis is on a direct experience involving all the senses – without any achievement pressure from the teachers. “Our project has already reached more than 8,000 children and young adults”, explained Veronika Fröhlich during the prize-giving ceremony. One of them is eleven-year-old Julius Lindemann, who accepted the certificate on behalf of all the young participants, answering with a resounding “yes” when the host, Franz Alt, asked whether the Energy School really had been fun.

The environmental teachers’ aim of introducing future-related topics, such as climate protection and energy consumption to young people at an early stage, is one that we strongly identify with. We are very pleased that our project partner Green City has been honoured with this award.

Energy School Munich – Prize for active climate protection

Happy to be recognised:
Representatives of Green City e.V.’s
Munich Energy School accept the
prestigious Georg Salvamoser award.



Knowledge bears responsibility. Our mission since the establishment of Munich Re Foundation has been to pass on our knowledge and experience to others. True to this motto, we accept teaching assignments, manage project seminars for masters study programmes and hold lectures at universities. Our close cooperation with the universities — not only in the Munich area — benefits both sides. We make it possible for students to gain an insight into our topics and all the associated players from politics, development cooperation and the private sector, while we keep abreast with breaking developments in academic research of today.

Joint university projects 2018

Participation
Climate change
Diversity

Mitigation
Gender
Adaptation
Financing
Insurance
Microplastic
Sustainability
Greenhouse
emissions
Sustainability
targets
SDGs
Water
Coaching zone
Risk
Urbanisation
Resilience
Risk transfer
Risk management
Integration
Train the Trainer

Project seminar:
"Global Change
Management";
Eberswalde
University for
Sustainable
Development

Project seminar:
"Disaster Risk
Management and
Livelihood Security";
University of
Erlangen

Compact seminar:
"Climate Risk
Insurance";
University of Bonn
in cooperation with
the UNU-EHS in Bonn

Risk prevention
Shock absorption
Population
development
Poverty
Flood warning
Cyclone warning
Cat bonds
Coastal resilience
Migration
Rising sea levels
Slums
Urban development
Poverty elimination
Insurance solution
Developing
countries
Emerging markets
Inclusive insurance
United Nations
FCCC
Sustainability
Council
Ecology

Seminar: "Water,
climate, environment
— For the sustainable
management of
global challenges";
University of Munich

Footprint
Dam project
Sustainable
procurement
Eco certificates
EMAS
ISO-14001
Ecoprofit
Flash mob
Education
Justice
Water supplies
Projects
World Climate
Conference

Compact seminar:
"Development
and Insurance
Mechanisms";
Seminar for rural
Development (SLE)
at the Humboldt
University of Berlin

2018 Summer Academy Global risks, environmental changes and adaptation — What role does urbanisation play?

“More data does not
necessarily mean more
clarity.”

MARK PELLING
Professor at King's College in London

Since 2009, there have been more people living in cities than in rural areas. In 2018, the urban population counted approximately 4.2 billion. The trend towards urbanisation is set to continue, and not only holds risks but also offers opportunities. For one thing, it creates high-risk hotspots, such as areas with an elevated incidence of natural hazards. For another, thanks to redundant infrastructure systems, such as multiple hospitals, cities are able to build up resilience to external shocks.



Top: Benjamin Karmorh from Liberia explains to Academy participants how he advises his government on how to create and adopt effective adaptation plans for environmental and climate change.

Right page, top left: Jakob Rhyner (UNU-EHS), Paul Desanker (UNFCCC) and Yuka Terada (UN Habitat) discuss how findings from the Summer Academy can be used for UN projects.

Right page, top right: Matthias Garschagen, head of the Summer Academy, explains the core elements of risk and how they are linked.

Right page, bottom: The UNFCCC's Koko Warner led several working groups at the Summer Academy. The climate expert uses the Academy's findings at the UNFCCC's Climate Change Secretariat in Bonn.



Not just climate and environmental changes can drastically change the balance between opportunities and risks. The increasing urbanisation also has wide-ranging implications. What consequences does this have for the living conditions of the people affected? At the 2018 Summer Academy, 25 scientists, UN delegates, government advisers and NGO representatives explored this question. Risk combines the three components of exposure, vulnerability and hazard. The Intergovernmental Panel on Climate Change (IPCC), the United Nations, and many political committees at local, regional and national level use a propeller diagram to illustrate how the components interact with each other (see picture above).

PLANNING AT NATIONAL LEVEL

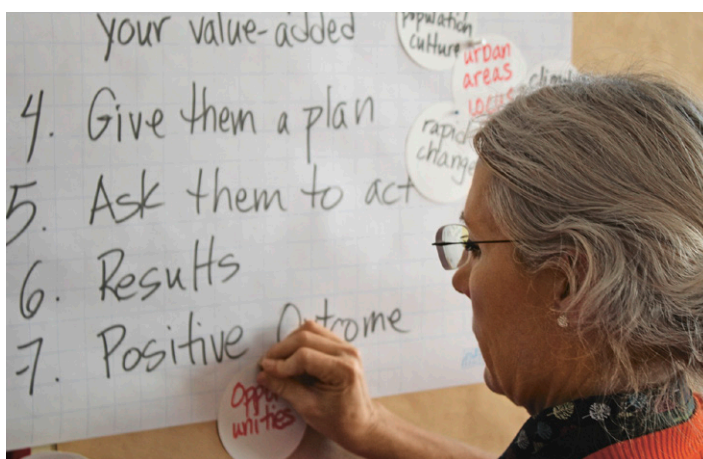
Paul Desanker, who is responsible for the adaptation programme of the United Nations Framework Convention on Climate Change (UNFCCC), emphasised the importance of the three components for good risk management. Only when the influence of and interaction between all three variables is adequately understood and has been scientifically analysed, is it possible to develop reliable future scenarios. Such scenarios then form the basis for political planning, in particular for adaptation to climate change at national level within the framework of the National Adaptation Plans (NAPs).

Matthias Garschagen and his research team at the United Nations Institute for the Environment and Human Security (UNU-EHS) have examined which fields funding flows into and where research work is already underway. While risk analysis is making good progress, research on vulnerability and exposure often lags behind — especially research into socio-economic issues. The Academy brought together a number of experts to bridge this gap. Using examples from Asia (India, the Philippines, Indonesia) and Africa (Ghana, South Africa, Kenya), they described models for measuring vulnerability. The influence of informal settlements, slums and sluggish infrastructure planning was also integrated into their work, as they are key factors and drivers of vulnerability and resilience. Along with the well-studied environmental changes, they also play a prominent role, and need to be integrated more strongly into risk management planning and the NAPs. The Academy's partner UNFCCC emphasised that internationally recognised guidelines need to be defined in this area.

COMPLEX MODELS ARE MORE VULNERABLE

Professor Mark Pelling of King's College, London, one of the world's leading researchers in the field of urban resilience, stressed that "more data does not necessarily mean greater clarity". Research findings, he said, show that important variables, for example on social vulnerability, are often missing in risk scenarios, or are not given sufficient consideration. They need to be incorporated into the models. However, this also means that the models are becoming increasingly complex and more vulnerable. In many cases, this new complexity leads to greater uncertainty rather than clarity for the policy-makers.

Which is why events like the Summer Academy are so important. They bring social scientists, urban planners, trend researchers and strategists together, allowing them to advise United Nations policy-makers and players more competently. What is important is to develop a common language. This then allows the often complex findings to be translated into instructions for taking action that policy-makers at the local level also understand. Where this succeeds, it becomes possible to achieve key UN goals, such as the Paris Agreement, disaster strategies and sustainability goals (SDGs).



Project overview

Water



Fog net project CloudFisher
in the Anti-Atlas mountains, Morocco

April 2016 — Oktober 2018

Opening ceremony on
16 October 2018: 31 new
CloudFisher collectors
with a net area of 1,700m²

Project partners:
WaterFoundation Ebenausen,
Dar Si-Hmad, Federal Ministry
for Economic Cooperation and
Development (BMZ)

“Our life has changed completely. I now have a lot more time for the family. We no longer have to walk for hours to fetch water. I can look after the house much easier or go to work.”

SALKA ISCHAR
Villager in the Moroccan Anti-Atlas

FogNet Alliance

Since August 2017

Appointment of the
Advisory Group in March 2018

Project initiators and
founding members:
WaterFoundation Ebenausen,
Munich Re Foundation

“One of the most important things are good, stable partnerships, like we have with the WaterFoundation Ebenausen and the Munich Re Foundation. It is very important as well, to trust the local communities. Without the support of this people we would not be where we are now.”

JAMILA BARGACH
Director of Dar Si-Hmad

The Ischar family with Jamila Bargach, Director of Dar Si-Hmad, (second from left) in front of the family's house. The quality of life of the family has significantly improved due to water from the fog nets.

Bottom: 31 new CloudFishers, at the top of Mount Boutmezguida, produce urgently needed drinking water for 15 surrounding villages.



Water is life — How fog collectors are improving living conditions in Morocco



In October 2018, a new fog net facility on Mount Boutmezguida was officially opened after a construction period of just under two years. It harvests roughly 35,000 litres of drinking water per fog day; on good days, even a great deal more. This is changing the lives of the people who live in the Anti-Atlas Mountains of Morocco, providing them with new perspectives.

**“We have enough sun,
so far only the water
was missing.”**

HASSAN ISCHAR
Villager in the Moroccan Anti-Atlas



The Ischars grow vegetables in their newly landscaped garden. The father proudly presents their harvest.

Since the beginning of 2017, Peter Trautwein from WaterFoundation Ebenhausen and the team from the Moroccan NGO, Dar Si-Hmad, have installed 31 new CloudFishers with a net area of more than 1,700m². In spring 2016, the German Federal Ministry for Economic Cooperation and Development (BMZ) approved funding for the construction of the world's currently largest fog collector facility. Munich Re Foundation is a project partner and has contributed half the equity capital required.

The modern fog collectors produce urgently needed drinking water for more than 1,000 people. A 25-km long pipeline carries a direct supply to the houses of 15 villages. Water is stored in several cisterns as a stock for days when there is little or no fog. It is an innovation that has brought a significant improvement to the villagers' quality of life. As in the case of the Ischar family.

MORE TIME FOR WORK AND FAMILY

Hassan and Salka Ischar live with their parents, children and grandchildren at the foot of Mount Boutmezguida. The region is bleak and barren, the soil unsuitable for agricultural cultivation. The Ischars live directly beside the water pipe leading from the fog net facility. Their little house is now provided with its own water connection. "Our lives have changed completely. I can spend a lot more time taking care of the family", Salka tells us happily. Women and children no longer have to spend long and arduous hours fetching water. They now have a lot more time for their households, for learning or working. For example, to focus on the production of the valuable Argan oil. A nutrient-rich oil produced in the area, which is now being exported to several countries all over the world.

"We just got new toilets and a wash-room installed in our school", her daughter tells us excitedly. The new sanitary facilities will help the pupils to learn how to mindfully handle the precious resource and also to improve hygiene. Jamila Bargach, the director of Dar Si-Hmad, would also like to create small gardens at as many schools as possible. "This would give us the chance to pass on knowledge about local plants and hold nature study lessons."

Dar Si-Hmad is planning as well to implement a teaching garden not far away from the Ischars' home in combination with an information centre for fog net technology. Visitors will then no longer need to climb the steep slopes to the top of the mountain to get an idea about the life-saving technology. They can obtain information in the setting of a permaculture garden while learning a lot about local plants and biological cycles.

WATER HAS A PRICE

The Ischar family also uses the water for their animals. "Thirsty donkeys don't walk well", says Hassan Ischar, laughing. He has built a small herb and vegetable garden behind his house. A household pays around 40 euro cents for 1,000 litres of fog water. That meets and exceeds all the drinking water standards set by the international health organisation WHO. If a family uses more water in a particular month, it becomes a lot more expensive. "In this way we can regulate water consumption", says Jamila Bargach, who set up the project for the Dar Si-Hmad organisation. "If water doesn't cost anything, it gets wasted. This is what tests have shown us", she adds. The receipts pay for a water manager, who also looks after the fog net facility and its condition. However, it does not cover the running costs of the facility completely.

"During the fog season, we often have too much water. Every day over 30m³ of water flow into the pipes, and much more on peak days. More tanks are being set up everywhere", explains Bargach. "We are currently in the process of connecting the 16th village to the pipeline system. The neighbouring valleys have already been asking when their turn will come." The demand is strong, and with the world's largest fog drinking water facility, Dar Si-Hmad has created a model for supplying water to people in arid but foggy regions. "We have more than enough sun here. All that has been missing up to now was water", says Hassan. Now, both are available.



In the past, women and children had to walk many hours to fetch water for their families and livestock. Today, they have enough water from their tap to even support a small vegetable garden in their yard.

FogNet Alliance — Competence centre takes up work

The international alliance for fog net technology was founded in 2017 for the purpose of pooling expertise in this field, promoting innovative technologies and initiating joint activities. The exchange of knowledge and collaboration between the experts is intended to motivate, support and advise global actors in setting up new projects.

All stakeholders and interested parties are warmly invited to become members of the alliance.

You can find further information on net technology and a bibliography with scientific articles, press releases, FAQs and fog net films on the website of the FogNet Alliance under www.fognetalliance.org.

The year 2018 was shaped by the establishment of the network: an international advisory group of experienced fog net experts was formed with the intention of assisting the steering committee of the alliance and the project initiators. The newly designed website of the alliance will serve as a central contact point as well as knowledge platform and also wants to ensure greater public visibility.



FogNet Alliance



For many Africans, the smartphone is now almost as important as the power and water supply. In recent years, the number of mobile phone users in Africa has increased by about 20 percent per year. The phones provide information about the weather and market prices, and are used for payment as well as for money transfers.



Insurance for everyone — Digitalisation as the key

By Dirk Reinhard

Affordable insurance solutions play a decisive role in achieving the global sustainable development goals (SDGs). They contribute to poverty alleviation, food security, health improvement, economic growth, women's rights and climate risk management. Traditional solutions are often too expensive, however. Modern technology can help cut costs significantly and enables millions of people to manage risk adequately.



DIRK REINHARD
is Vice-Chairman of the Munich Re
Foundation where he is in charge of
the Inclusive Insurance Department.

Hundreds of millions of people in developing and emerging countries do not have adequate protection against major risks such as illness or natural hazards. Figures of the Microinsurance Network, for example, show that the proportion of insured in many African countries is one per cent and even less. Hedging against risks is an important feature in sustainable economic development. An absence of infrastructure, insufficient data and a lack of access to low-cost payment methods increase insurance costs. This leads to extreme discrepancies, as demonstrated by the example presented at the 2018 International Inclusive Insurance Conference in Zambia: for a simple house worth 5,000 US dollars, the risk premium in the examples discussed came to a mere 30 cents. However, the costs for risk assessment, claims management and other administrative expenses added up to 12 US dollars. Too much to make a product affordable.

THE SOLUTION IS AIRBORNE

Mobile radio and satellite data is becoming increasingly important, especially with regard to protection against climate risks. In the past, designers and providers often failed because there was no reliable, tight-knit network of weather stations in many developing and emerging countries. Today, Zambia has a new agricultural insurance system. It relies on satellite weather data to calculate premiums and identify loss events. This made it possible to insure one million small farmers within one year.

According to the World Association of mobile operators, GSMA, approximately 700 million mobile wallets are currently in use. They enable mobile phone holders to use pre-paid credit in order to make payments and transfer money. This efficient method can also be used to pay premiums and allows the cost-effective administration of insurance policies. In addition, the insurer can make quick payments in the case of a claim. The two leading providers of such cellphone-based insurances (BIMA and MicroEnsure) alone had acquired more than 60 million new customers by the end of 2017. Not only for this reason, the two insurance giants Axa and Allianz have invested large sums in these two companies.

Mobile insurance coverage can further be increased by providing information on the mobile phone that enables holistic risk management. Images and data from drones or from sensors can be placed on buildings and networked via mobile phone systems in order to supplement weather data. They can warn of dangers such as fire within seconds and consequently accelerate disaster relief. Expert knowledge provided by mobile phone services can also help to reduce damage. In addition, mobile applications in the health sector, especially in rural regions, are the prerequisite for providing access to medical care. BIMA, for instance provides medical consultations via mobile phone for its health insurance solutions.

LEVERAGING THE FULL POTENTIAL OF DIGITALISATION

Research conducted by the South African think tank Cenfri revealed that over 280 Internet platforms for goods and services already exist in Africa. In addition to the well-known names such as Facebook and Amazon, locally developed platforms are increasingly emerging. 49 of them offer financial services and 24 can provide insurance services today. Experts expect these platforms to play a key role at several different levels in the future: customers – voluntarily and involuntarily – provide comprehensive data that can also be used for risk assessment. At the same time, the platforms offer enormous potential as sales channels for digital insurance. Mobile-based solutions have grown strongly in recent years, with digital platforms accelerating the process. Zhong An, which claims to be China's first real digital insurer, has reached over 400 million customers in just five years with the help of Alibaba – the “Chinese Amazon”.

Many legal aspects still need to be clarified. For example, who may collect and use which data? In addition, numerous national legal frameworks are severely lagging behind in terms of digitalisation. Some regulations do not permit digital payments at all, others insist on contracts in paper form. A lot of catching up is required in this respect. Otherwise, the immense potential offered by digitalisation in the development of cost-effective and until now unfeasible insurance solutions in developing and emerging nations will remain untapped.

In spite of all the questions that remain open, new mobile technologies and increasing digitalisation offer great opportunities for sustainable development. Used responsibly, digital innovations can be of immense benefit, in particular to the vulnerable lower income groups of the world.

Patrick Kasase Mumba is a general manager at Madison Life Insurance in Zambia. At the Millennium Bus Station in Lusaka, customers can purchase travel accident insurance directly on site or via app.



Project overview

Inclusive Insurance

#14thIMC



14th IMC 2018 — Inclusive Insurance for Emerging Markets

Lusaka, Zambia
6–8 November 2018
450 participants from
57 countries
Project partners: Technical
Advisory Group of Zambia (TAG),
Microinsurance Network

Field trips
Organisers: Madison Life
(MLife), Zambia Federation of
Association of Women in
Businesses (ZFAWIB)
Lusaka, 9 November 2018

10 Years of Evolution in Inclusive Insurance — Colombia Learning Sessions

Bogota, Colombia
17–19 April 2018

150 experts and government
representatives
Project partners: Fasescolda,
Banca de las Oportunidades,
MiCRO, BID-FOMIN

MEFIN Public Private Dialogue on Inclusive Insurance — Microinsurance Learning Sessions Sri Lanka

Colombo, Sri Lanka
21–22 March 2018

70 participants from the insur-
ance sector, supervisory author-
ities and donor organisations

Project partners: Access to
Insurance (A2ii), International
Association of Insurance Super-
visors (IAIS) and CIMA
Cooperation partners: GIZ-
MEFIN Network and IBSL

World Map of Microinsurance

*“The Landscape of
Microinsurance in Latin America
and the Caribbean 2017” —
Full report English*
Project partners:
Microinsurance Network



“Insurance gives people
the freedom to live, the
freedom to get stronger
and the freedom to
dream — also freedom
to make business.”

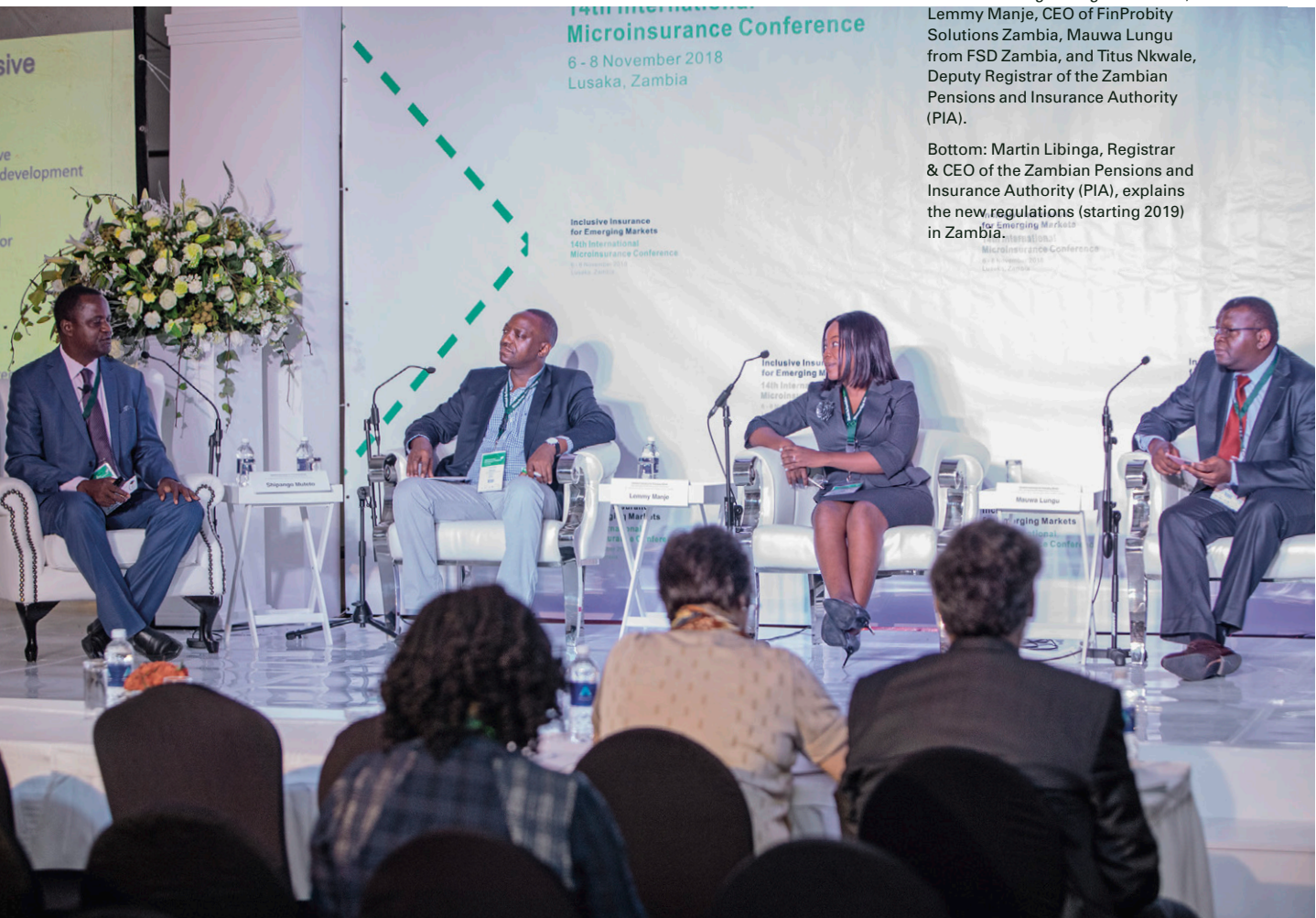
ROWAN DOUGLAS
CEO Capital, Science & Policy Practice



InsurTech opens up new opportunities

Millions of people and countless small businesses in developing countries are exposed to risks that can destroy their means of subsistence. Despite encouraging signs of increased insurance coverage in some countries, climate change and extreme weather events continue to make life particularly difficult for the poorest and most vulnerable members of society

If we want to rapidly expand the inclusive insurance market with the goal of increasing resilience and reducing disaster risk, we need to bring insurance companies, digital providers, regulators and policy-makers together (Pages 24/25). The good news is that the number of people in the lower income bracket who have insurance has increased significantly, as the Learning Sessions in Colombia showed (Page 27). In addition, with the emergence of InsurTech companies, the industry is faced with disruptive solutions that not only offer great opportunities but also create new challenges (Learning Sessions in Sri Lanka, Page 26).



Experts at the 2018 International Microinsurance Conference (IMC), from left to right: Shipango Muteto, Chair of the Organising Committee, Lemmy Manje, CEO of FinProbit Solutions Zambia, Mauwa Lungu from FSD Zambia, and Titus Nkwale, Deputy Registrar of the Zambia Pensions and Insurance Authority (PIA).

Bottom: Martin Libinga, Registrar & CEO of the Zambia Pensions and Insurance Authority (PIA), explains the new regulations (starting 2019) in Zambia.

14th International Microinsurance Conference An essential pillar of sustainable development



Managing risks reliably is the prerequisite for sustainable economic development. Experts at the International Microinsurance Conference (IMC) 2018 in Zambia agreed that insurance coverage plays a key role in more areas than risk management alone: the industry is also called upon to achieve other goals set by the UN's sustainable development agenda, such as better health care and food security.

The insurance market in Zambia

US\$ 1,480

GDP per capita



Account at financial institution (adult population)
36%



Insurance penetration (US\$ premiums/GDP)
1.15%

US\$ 17

Insurance density (US\$ premiums per capita)

US\$ 24.7m

Insurance gross written premiums

2.2m

Microinsurance lives covered



Microinsurance lives covered (% of low and middle income population)
37%

To meet this challenge, insurers need to acquire a better understanding of the areas in which coverage is most urgently required. “To achieve this, it is essential to bring insurance companies, digital providers, regulators and policymakers together”, explained Katharine Pulvermacher, Executive Director of the Microinsurance Network and co-organiser of the 14th Microinsurance Network. The “State of Microinsurance 2018” report published by the Microinsurance Network highlights the importance of InsurTech – the use of technology to reduce costs and open up mass markets. It could help accelerate access to insurance in emerging markets.

STRONG MARKET VOLATILITY

According to first results of the “Landscape Study on Africa” (see Page 40) presented, some 2.2 million low-income citizens in Zambia have insurance coverage (see graph). This is similar to the statistics for the larger countries of Nigeria and Kenya, despite the Zambian market having experienced a great deal of turbulence. Beginning with approximately 100,000 micropolicies in 2009, the volume rose to three million by 2014 due to the strong growth in funeral insurance policies, and then sank to almost half the amount. The figures rose again in 2017, when the nationwide introduction of agricultural insurance attracted close to one million new customers. According to the experts attending the IMC, it is crucial that insurance companies, the government and the supervisory authorities pull together if growth is to continue. For this reason, the Zambian insurance supervisory authorities are planning to introduce a new micro-insurance directive in 2019.

Figures from the Global Association of Mobile Network Operators show how new technologies can increase the reach of microinsurance. According to these statistics, roughly 700 million people worldwide now have access to mobile payment systems, primarily in developing countries. Mobile insurance had already reached more than 60 million people by the middle of 2017, an increase of 100% within just two years. However, an even more powerful sales tool – online platforms – has immense potential in both Africa and Asia. Impressive successes have already been achieved on these continents (see Page 21).

THE NEXT STEPS

The concept of inclusive insurance is based on the principles of simplicity, accountability, affordability, trust and, last but not least, the increased use of technology. Marketing and sales require innovation along the value chain, as well as genuine partnerships in which the partners’ values and goals harmonise. Insurance alone will obviously not help achieve lasting prosperity. But it is a decisive success factor.

Conference participants present their projects on site during a poster session.





Lively debates in Sri Lanka: The Learning Sessions dealt with climate change and new forms of climate risk insurance.

Sri Lanka Learning Sessions

Creating innovation through the “sandbox approach”

The Mutual Exchange Forum on Inclusive Insurance (MEFIN) is a network of policymakers and regulators in Asia. The fifth MEFIN Public Private Dialogue (PPD) took place in Colombo, Sri Lanka, in March 2018. It addressed inclusive insurance solutions that are to be increasingly used by InsurTech companies to boost protection in the fields of climate risk and agriculture.

People who earn their living in agriculture are particularly afflicted by weather-related natural disasters. Especially when there is no possibility of mitigating the risks. In his opening speech at the Learning Sessions in Colombo, the German Deputy Ambassador in Sri Lanka, Andreas Berg, therefore emphasised the need to develop insurance solutions for these problems. This is where the InsuResilience Global Partnership comes into play. It aims to insure an additional 400 million poor and vulnerable people against climate risks by 2020. To achieve this, said Berg, digitisation and blockchain technology need to be given top priority.

TESTING UNDER MARKET CONDITIONS

Technology is changing at breakneck speed. With the growth in numerous FinTech and InsurTech companies, the industry is being faced with disruptive solutions that offer great opportunities and create new challenges. On the one hand, they must guarantee regulatory authorities stability and consumer protection but, at the same time, be flexible enough to allow new developments. This is where the so-called “sandbox approach” comes into play. It enables start-ups to test their products on the market under regulatory supervision without being fully licensed. The regulatory approaches used in Pakistan and India were show-cased as positive examples in this respect.

Another challenge in the development of climate risk insurance is data availability. The example of the Sri Lankan microfinance cooperative, SANASA, showed that the insurers were being forced by the lack of reliable public weather data to organise data collection themselves. However, this is not a core competence of the insurers and creates unnecessary costs.

The inadequate understanding of how insurance works remains a major obstacle to its growth. Awareness campaigns for school children and adults could help. The results of the Learning Sessions flowed into the 14th International Microinsurance Conference, held in Lusaka, Zambia, at the beginning of November 2018.

Colombia Learning Sessions

Decade of progress

Over the past ten years, the number of Colombians who have taken out microinsurance has risen from approximately three million to more than five million. As the latest figures from the “The Landscape of Microinsurance in Latin America and the Caribbean” study show, this corresponds to more than one tenth of the population.

Colombia has changed enormously in the recent past and the conditions for access to insurance have never been better. This was demonstrated at learning sessions held in Bogota in April 2018. According to the financial supervisory authority, URF, 80% of the population now has access to financial services, compared to 50% in 2006. The reason for this progress is a series of efforts undertaken by the country to improve financial inclusion: financial education programmes, the development of payment systems for mobile phones, and new instruments to support small and medium-sized enterprises.

PARTNERSHIPS FOR CLIMATE RISK MANAGEMENT

The 2025 vision for Colombia is that it will have an inclusive, reliable, competitive and sustainable financial market. The major changes on the way to this goal will be the increased use of technology and the introduction of more digital models in the financial industry. In 2017, a special FinTech working group was formed for this reason. Its main task, among other things, is to ensure customer protection. The financial supervisory authority, URF, aims to pay special attention to rural areas, especially to insurance for the agricultural sector. However, solutions will not succeed without considerable support from the government.

Back in 2008 already, during his opening speech at the 4th International Conference on Agriculture in Colombia, the Colombian President addressed the enormous losses caused by natural disasters. At that time he called for public-private partnerships. Climate change has exacerbated the situation since then, and we need to admit that we are still a long way from real climate risk insurance. The learning sessions participants concluded that there is therefore not only a need for a financial instrument but also a series of financing strategies. This includes identifying risks, defining the responsibilities of the various stakeholders and developing suitable instruments at the macro, meso and micro levels. And, last but not least, they viewed the strong commitment of the Colombian Ministry of Finance as a major key to success.

The demand for insurances among lower-income households is unabated. Around 150 insurance experts from Colombia attended the event.





In her youth, Bessy Nyoni Chanda (right) was a freedom fighter and beauty queen in Zambia. Today she coordinates a cooperative for the widest diversity of consumer goods. Maureen Sumbwe from the Women in Business Federation (in the background beside the tree) introduced us to the 73-year-old.

Field trip Strong women in Zambia — Insurance is a key factor

The second part of the field trip during the 14th International Microinsurance Conference was dedicated to socially-committed female entrepreneurs in Zambia. Maureen Sumbwe, Head of the Women in Business Federation, introduced two of her customers to the participants.

Bessy Nyoni Chanda told us about her eventful and fulfilled life. She had been a freedom fighter, the winner of beauty competitions and the face of Coca-Cola Zambia in the 90s. Today she coordinates a cooperative that markets gemstones, agricultural goods and furniture: the All-Greens Multi-purpose Co-Operative. Following the foundation of the cooperative, she became a member of the Women in Business Federation. "I have experienced a lot. Today, I am raising my grandchildren", Bessy explains, "because four of my children have already died". HIV is a huge problem in the country. Some 1.1 million people are infected by the virus. "AIDS was not an issue with my children, but it is not uncommon for grandparents to raise their grandchildren." In the case of

fatalities, the financial burden is immense. Mourners and family members come together for many days. The costs for the meals and the funeral ceremony can ruin a poor family. Bessy has taken out Tilitonse (meaning “we are together”) funeral insurance, like 1.4 million other Zambians. The coverage depends on the premium amount and begins with a monthly premium of 30 kwacha (approx. €2.30). For an insured sum of €1,500, the premium costs roughly €9 per month.

SECURITY FOR 100,000 BUSINESSWOMEN

“We sell Tilitonse in our Federation”, says Maureen Sumbwe, President of the Zambia Federation Association of Women in Business, proudly adding: “Today we serve 100,000 women”. Members are represented in business issues and receive sound advice. They have access to markets and financial services, such as small loans. “We are essentially a platform for strengthening women’s capacities”, explains Maureen. The Federation is an aggregator and also trains members to become sales professionals for Tilitonse. Membership fees and premiums can be paid at the association meetings. “The women are grateful for this”, says the self-confident head of the Federation. “I give them greater security.”

STRONG WOMEN – A VISIT TO A PRIMARY SCHOOL

After a short drive, the excursion bus stops at a school complex: “Grandma School – Quality Education with a Difference” is written in large letters above the entrance. The principal of the private school, Nyemba Kayabwe, gives us a friendly welcome. All the classrooms are clean and tidy, textbooks and exercise books are stacked in meticulous order on shelves.

In Zambia, it is more than natural for superiors to be strongly committed to the welfare of their employees, also supporting them in everyday life. Especially in emergencies, when they even help to care for relatives. “I heard about Tilitonse at an association meeting and immediately insured all my teachers”, says Grandma Kayabwe. “That goes without saying for me as the boss. I pay attention to quality in schools, also as an employer.” Recently a colleague died. Two days later, Tilitonse paid her family 10,000 kwacha (approximately €770). “Of course that helped a lot”, Grandma is able to attest.

Zambian women and their fates. They talk about the many and rich facets of their lives: responsibilities, worries, dreams and challenges. Their stories allow listeners to catch a glimpse of their strengths. Fortitude, courage, joy – and the awareness that insurance relieves them of some of their worries.



Maureen Sumbwe is chairwoman of the Business Women's Association in Zambia. She introduced two of her members to the field excursion.



Headmistress “Grandma” Nyemba Kayabwe (right) talks about her daily work. Two of her teachers enjoy listening to her tales.

Project overview

Disaster prevention and resilience



“My house is close to the shore, which means there is a risk of erosion. If I had money, I would move to a safer place.”

KABIR
46 years old, from Gabtola, Bangladesh

“Climate change forces us to work together.”

SONJA AYEB-KARLSSON
UNU-EHS

2017 RISK Award Nepal

EpiNurse project – inventory after a year of implementation

September 2018
Project partner: Nursing Association of Nepal (NAN)

2019 RISK Award Coastal Resilience

Call for applications for the 2019 prize

1 September 2018
Project partner: UNISDR, GRF Davos

Gibika

Concluding workshop on climate change, livelihoods and risk management

22–23 May in Dhaka, Bangladesh
Project partner: ICCCAD, UNU-EHS

Excursion and dialogue to cyclone warning system

24–25 May in Dalbanga South, Bangladesh
Project partner: ICCCAD, UNU-EHS

“Resilience for Bangladesh” – A five year knowledge to action project on livelihoods and climate change comes to an end

October 2018
Project partner: ICCCAD, UNU-EHS



Natural disasters often occur without warning, often followed by devastating consequences: fatalities and injuries, damaged buildings and infrastructure. Being well prepared is the best protection.

Munich Re Foundation supports research work that identifies and minimises risks. In cooperation with the United Nations (UNISDR) and the Global Risk Forum Davos, we also bestow the €100,000 RISK Award.

Research and action

In Dalbanga South the project team spoke with participants about the successes and gaps in the cyclone warning system.





Gibika — Field research results for greater resilience



Bangladesh is severely impacted by climate change in many ways. This predominantly agrarian country, dominated by the three great rivers Meghna, Ganges and Brahmaputra, has already been inhibited in its development by regular floods and storm surges. The rising sea levels will aggravate the problems.

During the monsoon season, the inhabitants of inland areas are threatened by floods and tidal waves that severely erode the riverbanks. The coastal inhabitants are also exposed to erosion, along with cyclones, flooding, and soil salination. Another challenge is the recurring severe drought in the northwest of the country since the 1990s.

Adaptation measures are essential to prepare the country for coping with environmental changes in the long term. What can be done to strengthen the resilience of the population? Which other factors, in addition to the environmental changes, may lead to precarious living conditions? What role do population growth and urbanisation play? And, last but not least: where should pilot projects be implemented?

SEVEN REGIONS IN FOCUS

The Gibika project, meaning livelihoods in Bengali, was set up to clarify these issues. It ran from 2013 until 2018. The Institute for Environment and Human Security at the United Nations University in Bonn (UNU-EHS), the International Centre for Climate Change and Development in Bangladesh (ICCCAD) and Munich Re Foundation worked together with the local community councils to find solutions.

To gain a better understanding of people's vulnerability to environmental change and in this way increase their resilience, the project researchers selected seven regions that are confronted with climate change on different levels. The goal was to identify factors that lead to drastic and abrupt changes in livelihoods. We also wanted to understand the direct interaction between climate change and employment opportunities, and finally determine the extent to which political conditions influence the everyday life of the population.

Left page: Pakhi (28), a young mother in Dalbanga South, and her daughter are among the Gibika project's target group. The entire family participated in testing the village's cyclone warning system.

Bottom: A field trip clearly demonstrated the urgency of dealing with coastal erosion in Dalbanga. Severe storms regularly wash away large sections of shoreline.

Right: Kabir Howladar volunteers for the Gibika project and leads the warning exercises in his community. He presents one of the warning flags that gets raised in case of emergency.



The project helped us understand how people at risk make decisions. The key messages of the final report are:

Adaptation strategies can increase people's susceptibility in other ways.

Just as floods, hurricanes, riverbank erosion and droughts damage agricultural land and crops, the people affected change their farming practices, seek new livelihoods or migrate. However, migration can lead to other stress factors, such as danger to life and limb encountered in urban slums, or hazardous work environments that put such a strain on the people working there.

Social and cultural boundaries need to be understood more clearly.

Although early warning systems exist in many cases, social and cultural barriers can prevent people from escaping to safety in disaster situations: "It is the will of Allah whether or not the cyclone destroys my house."

Gender roles influence the response to disasters and the extent of climatic vulnerability.

When disaster strikes, not everyone has the same opportunities to respond. What is considered acceptable social behaviour for a man may not be suitable for a woman: "Unmarried women should not go to shelters, it only causes problems."

The health effects of climate change and environmental shocks are poorly understood.

The loss of their livelihoods can cause people to suffer both physically and mentally. More research is needed to understand the psychological after-effects of disasters such as post-traumatic stress syndrome or depression more clearly.

The study has shown how people at risk make decisions. Unfortunately, they often do not have a particularly strong awareness of the benefits of disaster management. As a result, the losses are even higher when disaster hits, and the consequences even more destructive. Changing this — not only in Bangladesh, but also in other countries particularly affected by climate change and natural disasters — can only succeed if the results of the study are also acknowledged by the policy-makers.



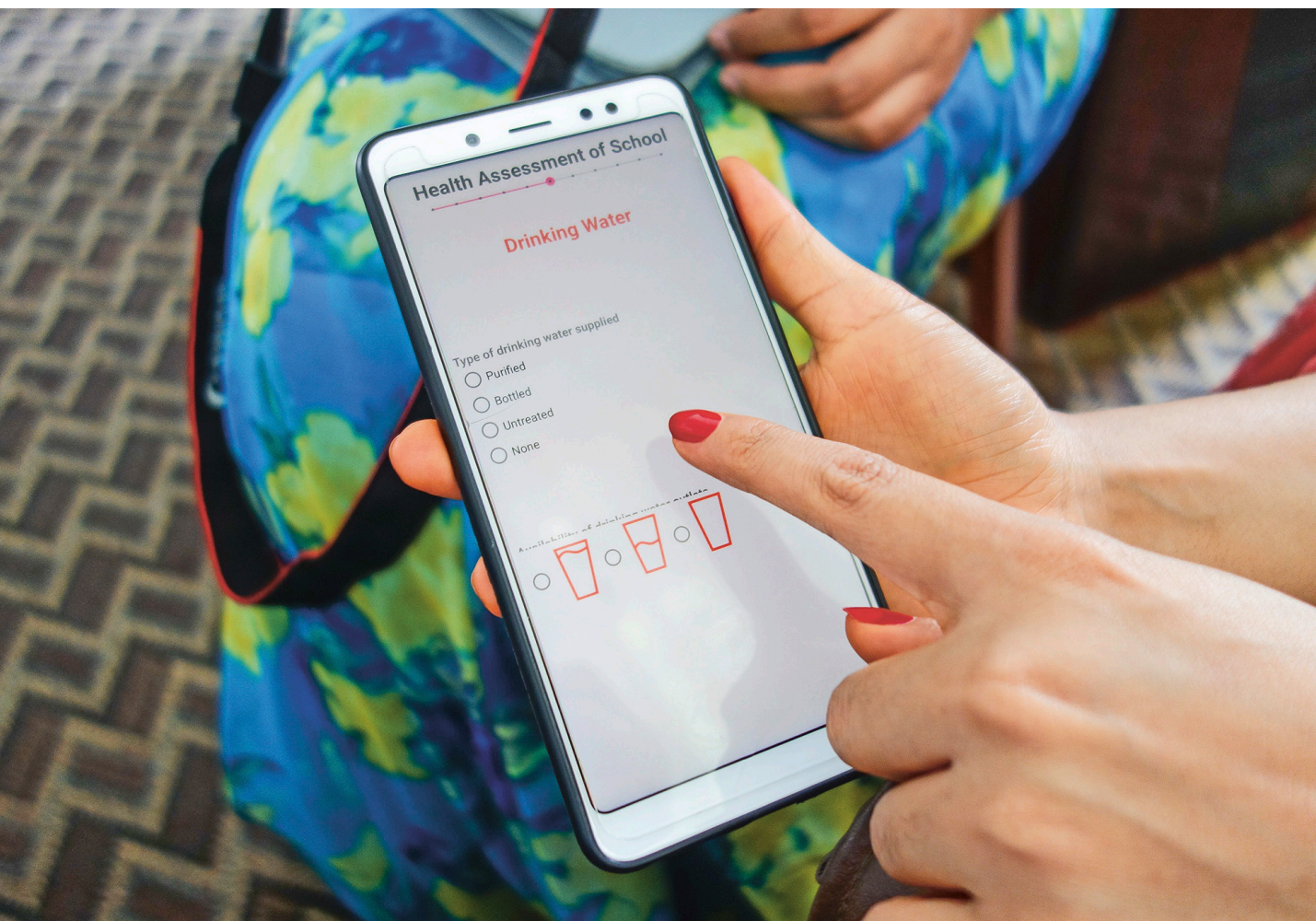
2017 RISK Award — How nurses in Nepal are modernising the healthcare system

Mobile phones and tablets are the daily companions of the EpiNurses — nurses with special digital training — in Nepal. The women are sent to refugee camps, crisis areas and remote mountainous regions to provide medical care in emergencies and beyond.

In 2017, the Nursing Association of Nepal (NAN) won the RISK Award. The nursing associations' project idea was to ensure, modernise and digitalise health monitoring and patient care, especially in the event of a disaster. This regularly confronts the country with challenges.

Firstly, it does not have a centralised, nationwide healthcare system. Many remote regions are served by separate health centres, which in turn are independently funded by various agencies, such as relief or non-governmental organisations and associations.

Secondly, patient data is often only filed in analogue records, some of which are handwritten. If a register is destroyed by a flood, landslide or earthquake, such as in 2015, all the records are lost. Thirdly, it often takes too long to determine which medicines and aid are required in a crisis region, and then to complete the complex ordering and delivery processes. In a crisis, this interaction between a lack of uniformity, poor data and inefficient processes can lead to the outbreak of serious diseases, such as typhus and cholera, especially in the wake of disasters.





Left: The nurses in the EpiNurse project can efficiently record patient data using an app and a smartphone, even in remote mountainous regions.

Top: Thakchi Sherpa (left), a nurse with the EpiNurse programme, receives an award for outstanding service. EpiNurse founder Sakiko Kanbara flew in from Japan for the ceremony.

2019 RISK Award — Greater resilience for coastal regions

Today, approximately 40% of the world's population lives in coastal regions, and the number is rising. Coastal regions are not only impacted by storms, coastal erosion and rising sea levels but also further stress factors such as the degradation of coral reefs and beaches as well as increasing soil salination. Natural protection zones must make way for infrastructure or new settlements.

The €100,000 RISK Award in 2019 aims to help reduce risk in coastal regions, improve local disaster risk management and strengthen people's ability to adapt to environmental change. The winning project must comply with the requirements of the UN Sendai Framework for Disaster Reduction. The prize will be awarded in May 2019 at the UNISDR Global Platform for Disaster Risk Reduction in Geneva. We have received a total of 109 applications from 48 countries.



FIRST STEPS TOWARDS DIGITALISATION

The NAN wants to tackle this, and trains its EpiNurses (an abbreviation for epidemiology and nurses) with a mobile app that can record patient data in digital form. The data is collected, analysed and compared nationwide on an online platform. It is planned to organise the further treatment steps via the online platform in the future.

It will be some time before the health system of Nepal is digitalised. The progress made so far is due to the great commitment of the Nursing Association and the people that make it possible. Such as EpiNurse Thakchi Sherpa: since the devastating earthquake in 2015, she has worked intensively to help the survivors. Many people took shelter from the earthquakes in a field in Boudhha on the outskirts of Kathmandu. With the support of Thakchi Sherpa, they procured tents and food and built up a reasonably secure water supply. She also took care of medical emergency and first responder services and set up a mobile emergency clinic in the Phulpingkatti camp.

Within a short period of time, hundreds of people gathered at the clinic, and more than 90 families found a roof over their heads. Although initially conceived as a temporary

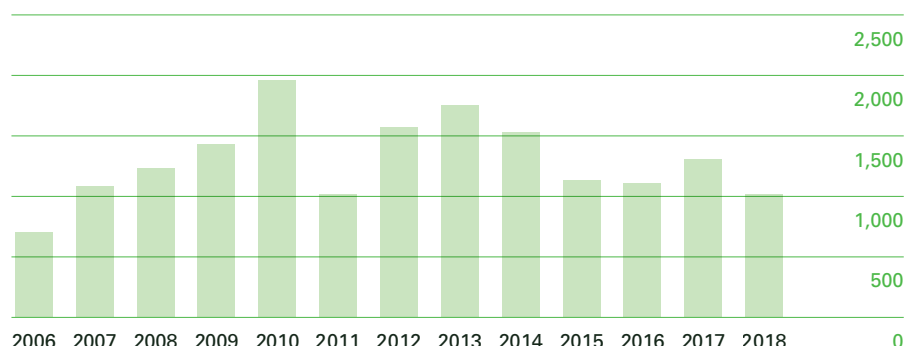
solution, 14 families are still living in the shelters three years later. Their old homes have not been rebuilt and they do not have the financial means to leave the camp. Daily health checks and preventative measures are required to prevent the outbreak of infectious diseases, which spread easily in cramped living conditions. Due to the lack of medical facilities on site, Thakchi Sherpa has also assumed responsibility for this. The remarkable thing about this is that she managed to set up the mobile clinic and auxiliary structures on her own. Only later did she ask for and receive support from the NAN.

The EpiNurse project now makes a lot of things much easier, in particular patient monitoring. Apsara Pandey (RISK Award project leader) and Tara Pokrhel (NAN director) emphasise: "Women like Thakchi Sherpa are special. If we are able to help her with our EpiNurse project, that makes us happy."

The Munich Re Foundation takes responsibility for climate protection. As every year, we compensate our business-related CO₂ emissions and those of our guests (e.g. conference participants) with an offset-project. In 2018, our carbon footprint was 1,013 tonnes of CO₂. The majority of 943 tonnes is due to our projects, conferences and seminars, while business trips and the operation of the foundation offices are responsible for the rest. Compared to the previous year, total emissions fell by around 294 tonnes. The Summer Academy 2018 and the Inclusive Insurance Conference 2018 (IMC) contributed mainly to the decrease of emissions: the Summer Academy was organised in Bonn instead of Washington D.C. (2017), and the IMC in Zambia (previous year: Peru). Both factors led to significantly lower travel kilometres of the participants. For business trips in Germany, the staff of the foundation almost exclusively used the train.

For further information please visit munichre-foundation.org/home/About-us/Environmental.

Emissions since 2006 (CO₂ in tonnes)



The offset project: Guyapa Stoves – Efficient cooking stoves in Ghana

Our founder, Munich Re, compensates emissions from the foundation's offices and the business trips of employees. To offset the carbon footprint of our events and projects, we purchase CO₂ certificates from certified climate protection projects. In 2018, we supported the Guyapa Stoves project in Ghana, marketing efficient cook stoves.

Compared to conventional charcoal kilns, these models save 35 to 50% fuel. In nine years, 240,000 stoves have already been sold. For the production of one kilo of charcoal, six kilos of wood are needed, which endangers the forest stock. A family can reduce the annual need for charcoal by up to 300 kg through the Guyapa stoves. The new stoves help to handle the resource forest more efficiently. In addition, the furnaces cause significantly lower carbon monoxide emissions, creating a healthier environment around the cooking zones. The total annual reduction amounts to 167,000 tonnes of CO₂-equivalents.

Two boys in Ghana proudly present their family's new stove.



Global partners

Inclusive Insurance

Microinsurance Network

German Society for International Cooperation (GIZ)

Mutual Exchange Forum on Inclusive Insurance (MEFIN) Network

Federal Ministry for Economic Co-operation and Development (BMZ)

International Labour Organization (ILO)/ Impact Insurance Facility

Georgia State University's Center for the Economic Analysis of Risk (CEAR)

Centre for Financial Regulation and Inclusion (Cenfri)

Munich Climate Insurance Initiative (MCII)

Access to Insurance Initiative (A2ii)

International Actuarial Association (IAA)

World Bank Group

Microinsurance Centre at Milliman GmbH

Microinsurance Master

Financial Sector Deepening Africa (FSDA)

Technical Advisory Group of Zambia (TAG)

Innovations for Poverty Action (IPA)

Bangladesh Insurance Association

CGIAR

Fasecolda

InsuResilience

Women's World Banking (WWB)

Fog nets

Dar Si-Hmad

WaterFoundation Ebenhausen

Energy School

Green City e.V.

RISK Award

Global Risk Forum (GRF)

UN International Strategy for Disaster Reduction (UNISDR)

All India Institute of Local Self Government (AIILSG)

Nursing Association of Nepal (NAN)

Gibika and Resilience Academy

International Centre for Climate Change and Development (ICCCAD)

United Nations University, Institute for Environment and Human Security (UNU-EHS)

Climate change and sustainability

University of Applied Sciences Munich

Eberswalde University for Sustainable Development (HNEE)

Ludwig-Maximilian-University of Munich (LMU)

University of Bonn

University of Erlangen

Humboldt-Universität zu Berlin

United Nations University (UNU)

Dialogue forum

Strascheg Center for Entrepreneurship

Network Klimaherbst München e.V.



Board of Trustees

DR. HANS-JÜRGEN SCHINZLER
Honorary Chairman of the Supervisory Board, Munich Re (Chairman of the Board of Trustees)

DR. MICHAEL E. BÖS
Head of Asset Liability Management Department, Munich Re

DR. DORIS HÖPKE
Member of the Board of Management of Munich Re

PROF. DR. PETER HÖPPE
Former Head of Geo Risks Research Department, Munich Re (Vice-Chairman of the Board of Trustees)

DR. PATRICK ILLINGER
Chief Science Editor of the Süddeutsche Zeitung, Munich

PROF. DR. CLAUDIA KEMFERT
Head of the Energy, Transportation and Environment department of the German Institute for Economic Research, Berlin

PROF. DR. LENELIS KRUSE-
GRAUMANN
Institute of Psychology, University of Heidelberg

THOMAS LOSTER
Chairman of the Munich Re Foundation

PROF. DR. DETLEF MÜLLER-
MAHN
University Professor for Development Geography at the Rheinische Friedrich-Wilhelms-University Bonn

Team

THOMAS LOSTER
Graduate in Geography, Chairman of the Munich Re Foundation

DIRK REINHARD
Graduate in Industrial Engineering and Management, Vice-Chairman of the Munich Re Foundation

CHRISTIAN BARTHELT
Graduate in Economic Geography, Project Management

RENATE KRAMER
Insurance broker, Assistant to the Chairman

JULIA MARTINEZ
Industrial clerk, Coordinator Microinsurance Management

MARTINA MAYERHOFER
Graduate in Political Sciences, Project Management

Committees

Members of the Munich Re Foundation's staff are active on a number of committees. The main ones are listed below:

FogNet Alliance
Member Steering Committee

Fortschrittskolleg NRW
Consultant

IFC Advisory Panel on Business and Sustainability
Member

InsuResilience
Consultant and Partner

Munich Climate Insurance Initiative (MCII), Bonn
Executive Board member

Network Münchner Klima-herbst e.V.
Program consultant

Münchener
Universitätsgesellschaft
Member of the Board

D+C Development and cooperation journal published by the German Federal Ministry for Economic Cooperation and Development, Berlin
Advisory Board member

Imprint, sources and picture credits

Imprint

© 2019
Munich Re Foundation
Königinstrasse 107
80802 München, Germany
Telephone +49 (89) 38 91-88 88
Fax +49 (89) 38 91-7 88 88
info@munichre-foundation.org
www.munichre-foundation.org
Letters: 80791 München,
Germany

Order number
302-09141

Editorial team
Munich Re Foundation:
Martina Mayerhofer,
Christian Barthelt,
Thomas Loster

Andreas Schuck, Munich

Editorial support
Munich Re Foundation:
Dirk Reinhard,
Valerie Voggenreiter,
Prof. Dr. Peter Höppe

Design
Keller Maurer Design,
Munich

Lithography
Gold, Munich

Printed by
Gotteswinter und
Aumaier GmbH
Joseph-Dollinger-Bogen 22
80807 München

Sources

The World Bank (2016):
World Development Report.
Digital Dividends.
TinyURL: tinyurl.com/gpnmre6
Page 9

Munich Re Foundation, own
depiction (2019), data source
Landscape of Microinsurance
— Country Profile Zambia (2018)
Page 25

Own depiction (2019), data
source: MRF environmental
review 2018.
TinyUrl: tinyurl.com/y8mzm79b
Page 36

Picture credits

Amanda Nero,
International Organization
on Migration (IOM)
Title

Oliver Jung
Review, pages 4, 7, 8, 20

Thomas Loster,
Munich Re Foundation
Review, pages 1, 13, 14, 15,
16, 17, 21, 28, 29, 32

Christian Barthelt,
Munich Re Foundation
Review, pages 12, 13, 30,
31, 33

Christoph Nowicki,
Eberswalde University for
Sustainable Development
Review, page 6

Apsara Pandey,
Nursing Association Nepal
Review, pages 30, 34, 35

Paul Desanker, UNFCCC
Page 1

Mohammad Batah,
World Food Programme
Page 2, 3

Ivor Prickett/UNHCR
Page 5

Munich Energy School
Pages 6, 10

Jacob Silberberg
Page 18

Munich Re Foundation
archive
Pages 22, 24, 25

Abbie Trayler-Smith
Page 23

Dirk Reinhard,
Munich Re Foundation
Pages 26, 27

FirstClimate
Page 36

Own Publications

2017 Report
German and English



Report – 13th International Microinsurance Conference 2017: Inclusive insurance for the mass market
English



Positionen 2017
dialogue forums:
Digital. Innovative. Fair?
The future on our doorsteps
German



2015 RISK Award: Self-assessment and planning (SAP)
English

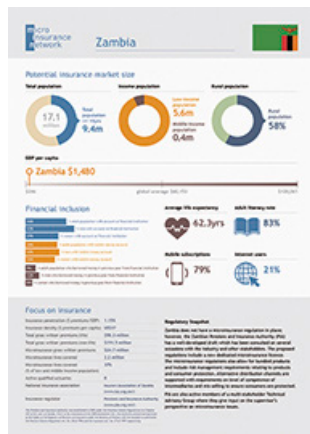


Publications with partners and from projects

The Landscape of Micro-insurance in Latin America and the Caribbean 2017 – Full report
English und Spanish



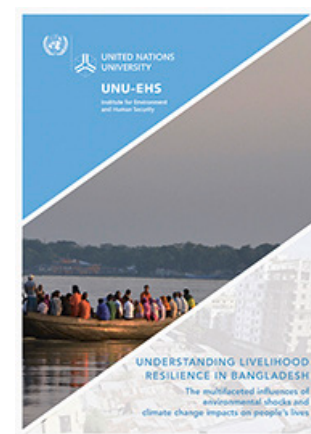
The Landscape of Micro-insurance in Africa – Country profiles Zambia, Kenya, Nigeria, Senegal and Togo
English



Gibika Final Report: Protecting Livelihoods
English



Gibika: Understanding Livelihood Resilience in Bangladesh
English



All publications are available for download. For further information and orders please visit www.munichre-foundation.org/de/home/MediaCentre.

Preview 2019

24 January

Dialogue forum: "Global poverty – The world in the poverty trap?"

9 May

Dialogue forum: "Poor in the affluent city – Living to survive in Munich"

21 February

Dialogue forum: "Poverty traps – When risk keeps you poor and poverty keeps you at risk"

May

2019 RISK Award ceremony – Official announcement of the winning project on "Coastal Resilience"

12 March

Dialogue forum: "Win-win situation for everyone – An entrepreneurial approach to bridging the gap"

May/June

Learning Sessions on Inclusive Insurance, East Africa

15 March

15th International Inclusive Insurance Conference
Call for proposals

September/October

Learning Sessions on Inclusive Insurance, Fiji

1 April

Begin of summer term at the University of Applied Sciences Munich, "Seminar on Sustainability"

1 October

Begin of winter term at the University of Applied Sciences Munich, "Seminar on Sustainability"

4 April

Dialogue forum: "Riester pension flop, Hartz 4 and child poverty – In what direction is Germany heading? What path is the EU on?"

7–11 October

Summer Academy „Global Risk and Adaptation Futures“, Accra, Ghana

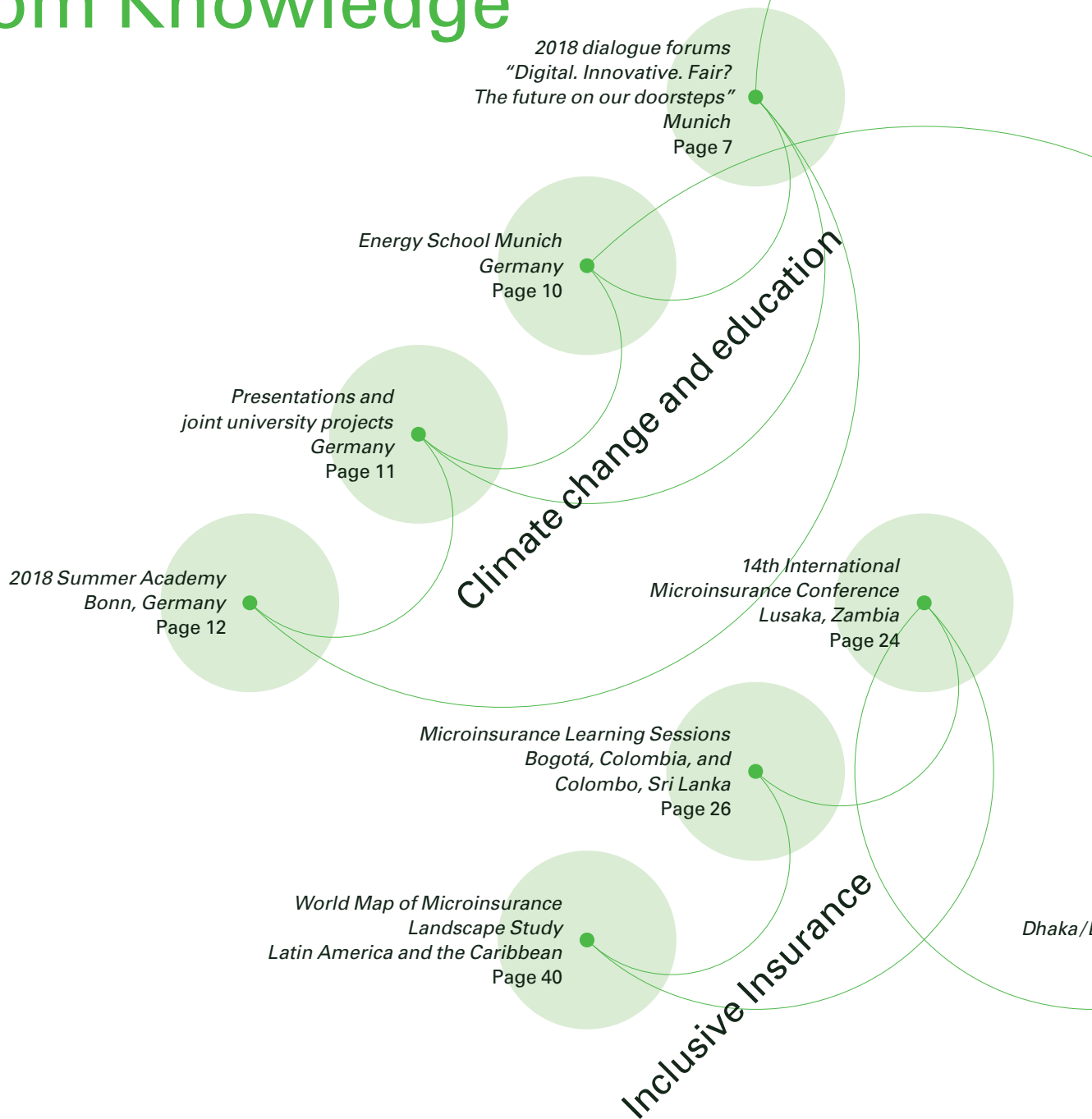
8–12 April

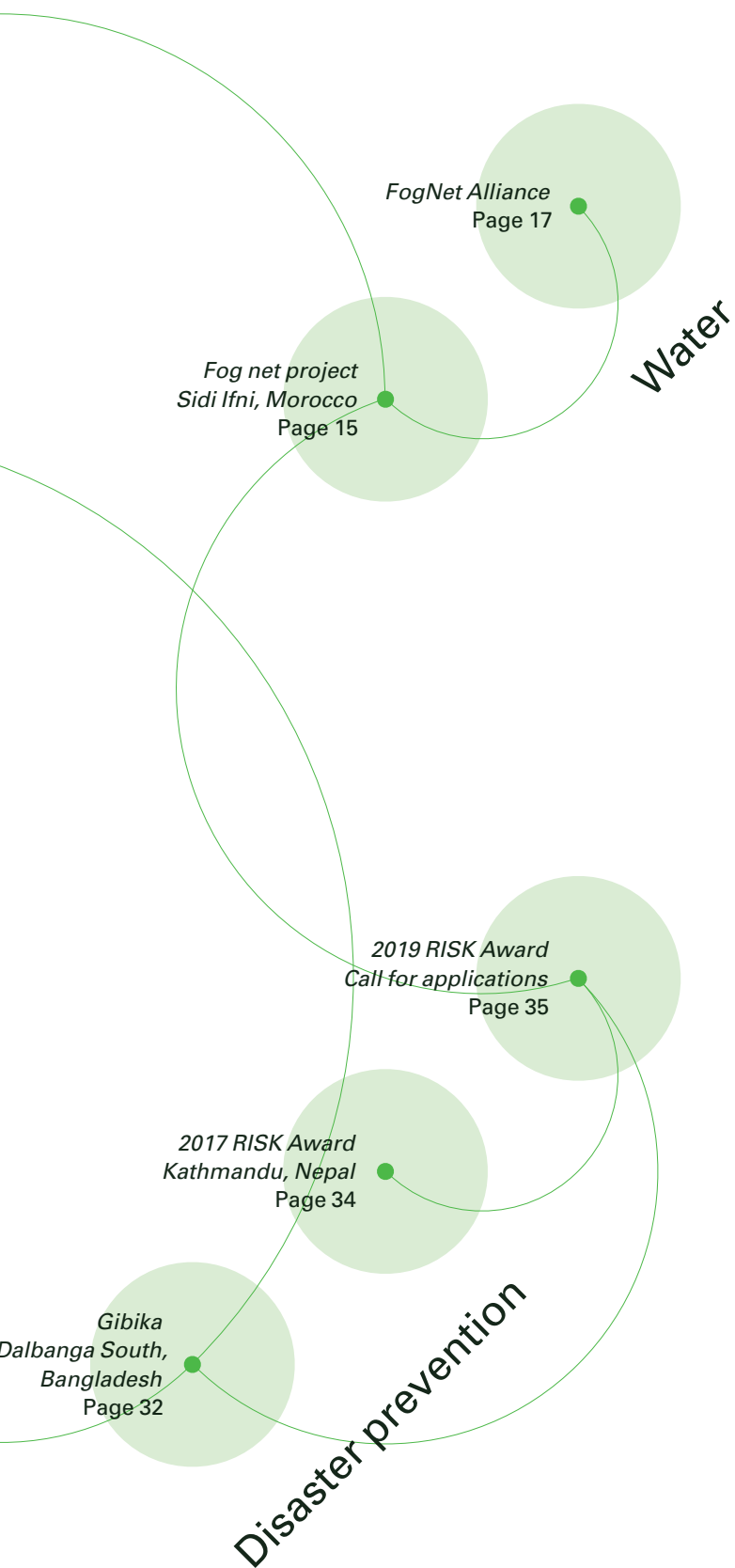
Themed week on Global Change Management with the University of Applied Sciences Eberswalde

5–7 November

15th IMC International Inclusive Insurance Conference in Dhaka, Bangladesh

From Knowledge





to Action

Munich Re Foundation
Königinstrasse 107
80802 München, Germany
Telephone +49 (89) 38 91-88 88
Fax +49 (89) 38 91-7 88 88
info@munichre-foundation.org
www.munichre-foundation.org
Letters: 80791 München, Germany



**Munich Re
Foundation**
From Knowledge
to Action

