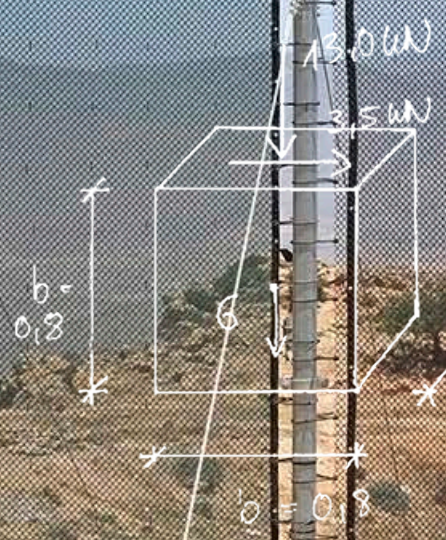
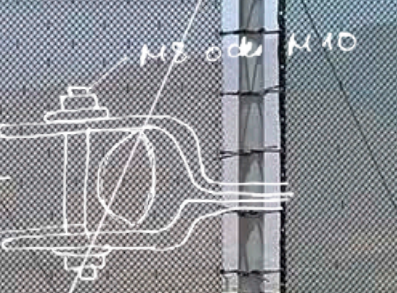
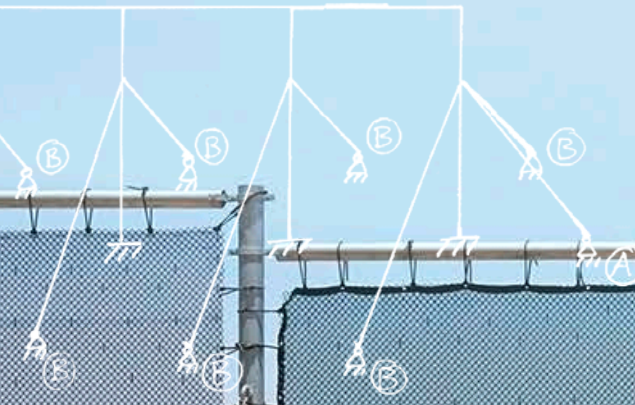
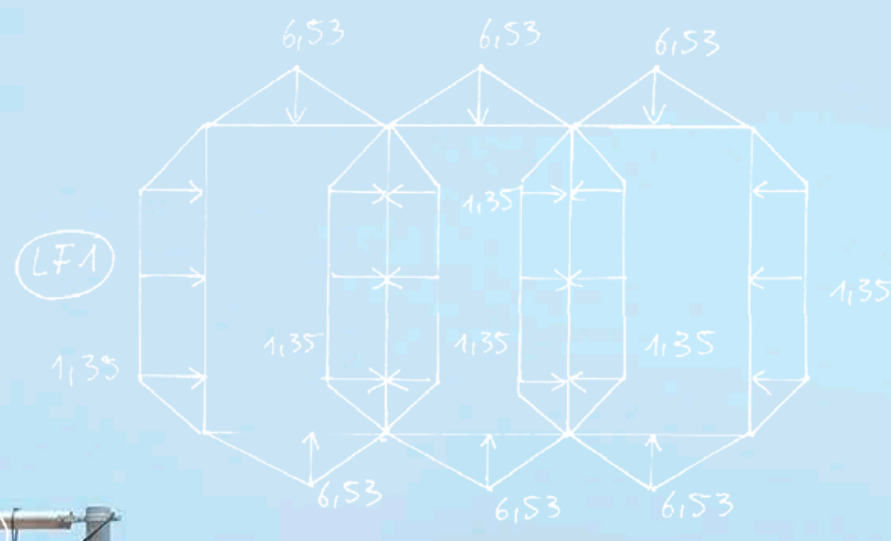


Munich Re Foundation From Knowledge to Action

2016 report



Windclast
 $v_L = 93.3 \text{ km/h} = 25.9 \text{ m/s}$
 $q = 0.6125 v_L^2 = 1.125 \cdot 25.9^2 = 419.3$
 $q_p = 90 \cdot 0.9 = 0.18 \text{ kW}$
 $w_u = 12 \cdot 0.18 = 0.196 \text{ kW}$
 $r = 0.2 \cdot 2.252 \text{ m} = 0.45 \text{ m}$

Jan
Feb



21 January
Dialogue forum
"Energy turnaround –
the only alternative –
right on track with
sun, wind and water"
Page 27

16 February
Dialogue forum
"Energy turnaround –
who will pay the bill?"
Page 27



24–29 February
On-site visit of the
2015 RISK Award project
in Pune, India
Page 43

Mar

3 March
Dialogue forum
"Electromobility –
from gas guzzler to
lean green machine?"
Page 27

Apr

6–7 April
Microinsurance Learning
Sessions in Mombasa,
Kenya
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12 April
Dialogue forum
"National Action Plan
on Energy Efficiency –
will Germany be the
energy world champion?"
Page 27

13 April
Morocco fog net project
receives BMZ funding
Page 7

May
June
July

12 May
Dialogue forum
"Do something! –
my contribution to the
energy turnaround"
Page 27

21 May
Emergency systems
take effect after
tropical storm rages
through in Bangladesh
Page 40



30–31 May
Microinsurance
Learning Sessions
in Cairo, Egypt
Page 21

31 May
Dialogue forum special
for students, trainees and
pupils "Energy turnaround –
Do something!"
Page 27

14 June
Dialogue forum special
"Climate change and
tropical rainforests"
Page 30

24–29 July
"Conference on Fog,
Fog Collection and Dew"
in Wrocław, Presentation
of the CloudFisher project
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Aug
Sep

Oct

Nov
Dec



August
Funding for an innovative
housing construction
project of Building Pioneers
in Bangladesh

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31 August
2017 RISK Award:
call for proposals at the
IDRC Conference in Davos,
Switzerland

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20 October
Klimaherbst 2016
Dialogue forum special
“Young researchers
and entrepreneurs for
climate protection”

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24–26 October
Lessons learned of the
2015 RISK Award Pune
project are presented during
the UNICEF “Global Urban
Climate Consultation”
conference in Mumbai

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4–10 September
Resilience Academy
“Climate change and
disaster risk management:
developing solutions in
a complex world” in the
Abbey of Frauenwörth,
Germany

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7–18 November
UN-Climate Change
Conference COP 22 in
Marrakech, Morocco:
presentation of the
CloudFisher project
and of the Policy Brief
“Loss and Damage” by
the Resilience Academy

[Page 9 and 39](#)

12th International Microinsurance Conference

15–17 November
12th International
Microinsurance Conference
in Colombo, Sri Lanka

[Page 15](#)



18 November
Microinsurance field trip:
cooperative mutuals in
Sri Lanka

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15 December
Fog net project Tanzania:
funding commitment for
the construction of a
CloudFisher in Qameyu

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Title: Innovation for more quality of life. Volunteers install different test nets in Morocco's Anti-Atlas Mountains. The most efficient net today is used in the technically refined CloudFisher collector.

Dear Readers,

Nowadays, all the talk seems to be about big data and innovation. These issues are also important for Munich Re Foundation. After all, new methods and technologies can change the world – sometimes all that is needed is a simple but clever idea. On the following pages of our 2016 annual report, you can learn how innovations help many of our projects to forge ahead.

In 2016, we received very good news about our fog net project in Morocco. Thanks to funding from the German Federal Ministry for Economic Cooperation and Development (BMZ) in Berlin, the nets used in the old technology are now being replaced by new collectors (CloudFisher). Not only are they more resilient to wind and weather, they also deliver higher yields. The largest fog net system in the world is currently being built in the Anti-Atlas Mountains. It can produce up to 25,000 litres of drinking water per day (page 7). This frees women and children from the cumbersome task of fetching water.

Our 2015 RISK Award project in Pune, India, is also about women and children. It helps them to prepare for the particularly severe risks posed by disasters in slums. The pioneering project is now in the final stages of completion (page 43). Disaster risk reduction is also important in Bangladesh. Our Gibika project, aimed at improving the living conditions of the local people, has shown that an efficient early warning system is an important element of successful risk management. In May 2016, our project area Dalbanga South was hit by Cyclone Roanu. Because of our project, the people affected were able to respond more quickly and efficiently to the warnings (page 40).

Innovation was the focus of the now 12th International Microinsurance Conference, which took place in Sri Lanka in November 2016. Some 400 experts from around 50 countries discussed solutions for the fight against poverty. New technologies were central to many contributions and discussions, as the mobile phone not only plays an increasingly important role in Sri Lanka, but also all around the world. In the field of microinsurance, it supports sales, administration and claims management – and also significantly reduces transaction costs (page 15).

Innovation is important – education too. Education for sustainability is the key to future viability. It needs to begin at an early age and does not end when people get older. For this reason, we intensified our activities in 2016 (page 26). Knowledge building, education and direct help on the ground are the core elements of our work, and we will continue to pursue them with undiminished fervour in the coming year.

I wish you a stimulating read.



Thomas Loster



Peter Trautwein is an industrial designer from Munich and has developed a new fog collector. He presented it at the World Climate Conference in Marrakesh. It can harvest up to 15 litres of drinking water per square metre of net in just one fog day.
Page 7



Dirk Pereira is the president of the Insurance Association of Sri Lanka. For him, the fight against poverty can only succeed if innovative risk transfer possibilities and mobile banking also become the standard in developing countries.
Page 10

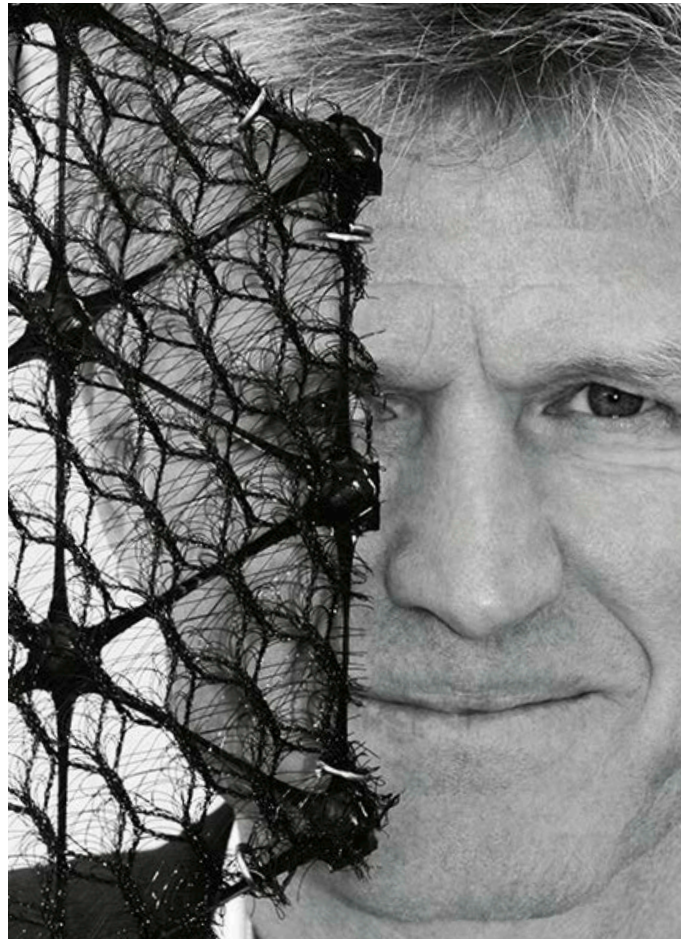


Stephan Kohler is an energy expert and chairman of the GETEC Advisory Board, and sees numerous opportunities in a successful energy turnaround. He warns that many decision-makers have not yet understood the dimensions involved.
Page 22

Women in Ethiopia gather below a tree to pray for rain. This country, like many other regions in Africa, repeatedly battles with droughts. Alternative sources of water to the few wells that exist are more important than ever.



Innovations for a better world



Innovative technology and social thinking can produce great solutions.
Engineer Peter Trautwein presents a new 3-D fog net that achieves higher yields of
harvested fog drinking water.

New technologies, methods and processes are changing our life as never before. Innovation is much more than just a buzzword. Diverse and sometimes completely new possibilities are also opening up in the area of development cooperation.

Thomas Loster



Thomas Loster

is the chairman of the Munich Re Foundation and an expert on climate change and disaster prevention. Since the foundation was established he has been dealing with innovation.

Innovation is all the rage at present. It astounds us each and every day: self-propelled cars, virtual reality, being able to look at tiny side streets of foreign cities on your tablet on the sofa. This is just the beginning of a gargantuan development that is gathering momentum at breakneck speed. Whether they fill us with fascination or apprehension, computers and robots will soon be relieving us of work. If they take everything off our hands, leaving us with no work to do ourselves, this could lead to problems. Innovation is changing our behaviour and our society. Which is why a lot of people are sceptical about innovation.

The perpetually accelerating development of new things is based on Moore's law, which was formulated in the field of information technology more than 50 years ago. Put very simply, this law says that the processing efficiency of computers doubles practically every two years, which means that it increases more or less exponentially. Thus leading to gigantic processing capacities. No wonder, therefore, that the mobile phone in a primary school pupil's trouser pocket is already many times more powerful than the computer that brought Apollo 11 to the moon in 1969. Because of this high-speed development, we are currently in the middle of a technological and digital revolution.

Innovation also influences the work conducted by Munich Re Foundation in the area of development cooperation. Take cell phones, for example: "mobile money", or bank transactions and money transfers using mobile phones, are rapidly growing all over the world. In Asia, there are already more than 2.5 billion mobile phone contracts. In Bangladesh, one of our project countries, more than 90% of households are already connected to mobile communications services. According to the industry association of special mobile service providers, there are now 400 million mobile bank accounts. This will give microinsurance a major boost. It greatly facilitates the administration of customers, sales, premium transfers and also claims payments.

Cutting-edge technologies are not always at play when it comes to innovation. The Building Pioneers Company, which we sponsor, wants to revolutionise the production of bricks in Bangladesh using a simple method. Building blocks that fit snugly into each other like Lego bricks are aimed to make houses safer in the regions of poor countries threatened by natural catastrophes. Moreover, the new bricks are not baked in furnaces but rather formed by pressure. In this way, health risks and environmental pollution caused by emissions are significantly reduced. A construction method hailing from the 50s of the last century gave the young entrepreneurs the idea – and earned them the renowned "Google Impact Challenge Award".

It is often quite simple ideas or brainwaves that have a strong leverage effect. For example, the winner of our first RISK Award optimised the flood warning system in the poor regions of Beira in Mozambique using surprisingly simple materials and tools: the main component of the technical flood-warning system consists of a hollow pole containing a metal ball that floats upwards as flood waters rise, thus triggering an alarm siren. A flood-warning device of this kind costs around US\$ 10 to build, and can be installed directly on site – in any country in the world – using simple equipment.

A great deal more work and resources are required for the latest generation of fog nets developed by our project partner, Peter Trautwein from the WaterFoundation Ebenhausen, to harvest drinking water from fog. His technically sophisticated and durable fog collectors build on decades-old construction plans. Thanks to innovation, these new CloudFishers are able to extract many times more drinking water from the fog than before. The largest fog net system in the world will soon be built in the Moroccan highlands. It will produce up to 25,000 litres of drinking water per day.

Innovation is much more than a new quality of life per mouse click. It has the potential of being able to save our existence. Let's take the example of climate change: in November 2016, the COP 22 World Climate Summit, with almost 200 participating countries, once again tackled the question of how to curb climate change. And, once again, this meant a great deal of discussion and debate – as it always has done since the first climate summit was held more than 20 years ago. Politics are inert. I would not be surprised if a breakthrough discovery in research or the economy, such as a high performance method, a new storage medium, or some other invention, ultimately created the technical conditions to dramatically reduce CO₂ emissions and thus save the climate.

Discovery, invention, innovation – as I mentioned before, fascinating, but also worrying. Yes, of course, technological progress can threaten jobs. But it can also significantly improve living conditions for millions upon millions of people. We cannot refuse to acknowledge innovation. We must accept, embrace and shape it. The positive effects are then sure to outweigh the downsides.

Fog nets in Tanzania produce precious drinking water. Surplus reserves are stored in tanks and used for agriculture. Soon the old fog nets (picture) will be replaced by brand-new efficient Cloud Fishers.



Water



CloudFisher

The CloudFisher fog net project in the Anti-Atlas Mountains of Morocco

April 2016–April 2018

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

Presentation of the CloudFisher
project in Morocco at the COP 22

Marrakesh, 6 November 2016

Project initiators:
Dar Si-Hmad,
WaterFoundation Ebenhausen

“Technology transfer is possible and successful! The CloudFisher is now also being used in Tanzania.”

Fog net project Tanzania



Fog nets Morocco

UNFCCC's “Momentum for Change” award goes to our Moroccan partner organisation, Dar Si-Hmad

Marrakesh, 16 November 2016

Project initiator:
UNFCCC

“The first major practical test for the new CloudFisher net technology: starting in 2018, over 1,600 square metres of net surface area will produce up to 25,000 litres of drinking water.”

Fog net project Morocco



Fog nets Tanzania

Fog net project in the Babati region of Tanzania

November 2013–December 2017

Project partner:
p(e)d world e.V.

Water from floating springs

Fog nets Morocco



A cobweb catches the morning dew in a meadow. Nature shows us how many different ways there are of harvesting water.

The Federal Ministry for Economic Cooperation and Development approved funding for the CloudFisher in the spring of 2016. The innovative fog collector developed by WaterFoundation Ebenhausen is the first serially produced fog collector that can withstand even the most extreme wind forces.

Clouds and fog are not evenly distributed in the global hydrologic cycle. In some areas, there is little or no precipitation at all. On the other hand, fogs build up along some coastlines or in mountainous regions and can contribute to water supplies in arid regions. One such area is the summit of Mount Boutmezguida in the Moroccan Anti-Atlas Mountains, which reaches to an elevation of 1,200 metres. Construction of the world's largest facility using the new CloudFisher technology will commence there in January 2017. This project would not have been possible without the generous support of the German Federal Ministry for Economic Cooperation and Development. The grant application was jointly submitted by WaterFoundation Ebenhausen and the Moroccan non-governmental organisation (NGO), Dar Si-Hmad. Munich Re Foundation organised important contacts and supported the technological development with funding. It contributed half the equity capital required.



Left: Science meets practice. Six different types of nets, varying in cost and production requirements, collect different quantities of water from the same amount of fog. The most efficient material is used in the new CloudFishers.

Below: A small school in the project region is supplied with drinking water. The pupils are happy.



The challenge of supplying water

The region around Mount Boutmezguida is one of the most arid areas in Morocco. The local population must collect drinking water from a well that is many kilometres away from their village. Usually, this is the responsibility of the women and children. It is estimated that the people of Africa spend more than 40 billion hours each year fetching water. Fog nets can improve drinking water supplies. WaterFoundation Ebenhausen developed the new CloudFisher in over two years of research. Depending on the region and time of year, the daily water yields range between four and 15 litres per square metre of net surface area, sometimes even more. In January 2015, the test version of the new collector in Morocco achieved peak values of 66 litres per square metre.

Greater stability and yields

The CloudFisher offers many advantages: all the components, such as posts, steel cables, net fabrics and attachment fittings, along with the concrete foundations, have been calculated to withstand very strong, gusty winds. As the first serial-production fog collector worldwide, it can withstand wind velocities of up to 120 km/h. The materials used are of food-grade quality and are extremely resistant to sunlight and other environmental influences. The biggest weak point of the older generation collectors was the net fabric. The nets tore very easily and had to be replaced. The amount of maintenance and repair work required was enormous. In contrast, the CloudFisher absorbs the forces across its entire surface area and distributes them evenly. Industrial designer Peter Trautwein from WaterFoundation already began to develop the new fog collectors in a joint project with researchers from the Technical University of Munich back in 2012. Following long discussions on wind loads, structural design, material wear and water yields, the first



“Momentum for Change”

The work of our Moroccan partner organisation has been especially recognised and honoured with the “Momentum for Change” award bestowed by the United Nations Convention on Climate Change (UNFCCC). Thirteen groundbreaking lighthouse projects from all around the world were awarded the coveted prize at the COP 22 in Marrakesh for their initiatives against climate change and its consequences. Dar Si-Hmad was one of the winners. We extend our warmest congratulations on this highly esteemed award!

CloudFisher was installed on Mount Boutmezguida in the autumn of 2013. Trautwein tested and experimented with different fabrics – from simple so-called Raschel nets to sophisticated high-tech materials. The fog collector can be installed quickly and easily, needs no energy to operate and is exceptionally low-maintenance. Following a successful test phase in Morocco, the installation of 30 fog collectors has now begun. If everything goes according to plan, the first 15 collectors can already go into operation in the spring of 2017 and deliver urgently required drinking water in the next fog season. The goal of all the project partners is to make the new net technology internationally known as quickly as possible. When the whole Mount Boutmezguida facility has been completed in the spring of 2018, it will be able to produce over 20,000 litres of drinking water during one single day of fog. Water that will improve the living conditions of people in the Anti-Atlas Mountains and thus create new prospects for the entire region.

CloudFisher at international conferences

The CloudFisher was introduced to the community of international experts in July 2016 at the “Conference on Fog, Fog Collection and Dew” in Wrocław, Poland. The new collector was also presented at the Climate Summit in Marrakesh at the end of 2016 as part of a side event, where it met with great interest. Aissa Derhem and Jamila Bargach from Dar Si-Hmad teamed up with its developer, Peter Trautwein, and the geographer Victoria Marzol from the Universidad de La Laguna, Tenerife, to answer the questions of the media representatives and conference participants.

Fog nets make it possible to supply drinking water for the local populations in arid and virtually inaccessible regions. Our fog net projects are dedicated to creating functional water supply systems. This improves quality of life – especially for women and girls – and increases the resilience of people at risk.

→ www.munichre-foundation.org/home/Water/Fognets

Technology transfer in practice

Fog nets Tanzania

The CloudFisher is now also being used in Tanzania, where the German organisation p(e)d world has been installing fog collectors since 2011. The first generation collectors that have been in use here so far are now outdated. A collector needs to be completely replaced at the main location of Qameyu: the steel cables and nets are torn, some of the collecting troughs have become rusty. The collector will be replaced with a CloudFisher in the winter of 2016/2017, thanks to the financial support of Munich Re Foundation. The students of the Qameyu secondary

school will benefit significantly from this, as the CloudFisher produces much higher water yields than the old nets and needs hardly any maintenance. For the Munich developer, Peter Trautwein, it is also a good opportunity to test his new collector in real practice close to the equator at an altitude of approximately 2,500 metres – very different conditions than in Morocco. A win-win situation for everyone involved: innovation and technology transfer work in practice.



Fog nets installed by p(e)d world in the highlands of Tanzania. The drinking water they harvest is of particular benefit to the pupils.

Women bring in the harvest from a paddy field in Sri Lanka. Agriculture is an important economic pillar and employer for millions of people. Climate change and environmental changes pose a risk to crops, income and health.



Stimulate growth with innovative insurance solutions



A farmer in Sri Lanka practices with her mobile phone. She is taking part in a course run by the International Fund for Agricultural Development (IFAD) and is learning how insurance works. Smartphones play an increasingly important role in the country.

The 12th International Microinsurance Conference took place in Sri Lanka in 2016. Already 7% of the population are covered by microinsurance and the trend is increasing. Dirk Pereira, the president of the Insurance Association of Sri Lanka, explains where he sees further potential for growth.



Dirk Pereira

is the president of the Insurance Association of Sri Lanka (IASL) and advocated innovative risk transfer mechanisms in developing countries.

What role, in your opinion, does microinsurance play in the context of sustainable economic development in Sri Lanka?

Dirk Pereira: Microinsurance plays an important role, since it creates a financial safety net for those who need it most. The Landscape of Microinsurance in Sri Lanka 2016 report highlights that there has been an increase in the number of insurance policies issued, but as discussed and highlighted at the 12th International Microinsurance Conference, much more work is required to embed insurance into the day to day lives of these customer segments.

What have been the most promising developments in Sri Lanka in the past five years?

The increase in micro and more traditional forms of insurance clearly highlights that awareness levels regarding the value and benefits of insurance has increased among all segments of society. New legislation has been passed to regulate the micro finance industry, which is also a step in the right direction. The proliferation of mobile phones has also created an enabling environment for insurers to distribute their products at scale.

How do you see the private sector's interest in entering the low-income microinsurance market?

As reflected in their participation at the 12th International Microinsurance Conference which took place in Colombo, Sri Lanka, in November 2016, private insurance companies from across the world are very positive regarding the growth potential of this segment. One reason could be that there is a growing realization that the needs in this market can be met in a profitable manner. This segment of the industry is also at the cutting edge of product and distribution innovation, which is another reason for optimism.

Despite the impressive growth in many countries, the insurance penetration in Asia still is at a very low level in the low income sector: what are still the main barriers and how will you address them?

If I speak for Sri Lanka, we are taking a multi stakeholder approach to increase awareness regarding the value and benefits of insurance. The Insurance Board of Sri Lanka (Regulator), Insurance Association of Sri Lanka (IASL) and the Insurance Ombudsman are constantly working on this front, and we believe the growth we have achieved over the recent past reflects the success of this initiative. As an industry we are constantly exploring innovative product solutions and distribution mechanisms to ensure that we create the right products, at the right price, which can be made available to customers at the right time. This is an ongoing initiative, but we are confident that the success we have achieved will provide further momentum for all stakeholders.

What role will/should the Munich Re Foundation play in that context?

The Munich Re Foundation plays a key role in disseminating knowledge, best practices and creating network opportunities for relevant stakeholders to meet and share their experiences so that we make our collective efforts resonate around the world. On behalf of the Insurance Association of Sri Lanka, I take this opportunity to thank the Munich Re Foundation for placing their confidence in us to host such a prestigious event, and sincerely wish Peru, the host nation of the 13th International Microinsurance Conference every success.

Farmers attending a training programme in Kalugahakandura (Sri Lanka) learn how to operate their small farms economically and thus make them fit for the future.



Microinsurance



12th International Microinsurance Conference

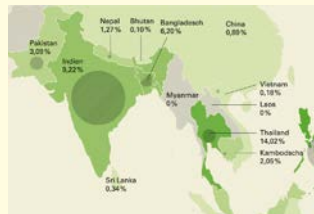
“Driving growth and sustainability – A business case for microinsurance”

Colombo, Sri Lanka, 15–17 November 2016

More than 400 delegates from around 50 countries

Conference organisation: Insurance Association of Sri Lanka (IASL), Microinsurance Network and Munich Re Foundation

Field trip on “Cooperative mutuals in Sri Lanka: the Sanasa approach”



World Map of Microinsurance

New publications in 2016

“The landscape of microinsurance in Africa”, full report

“El panorama de los microseguros en América Latina y el Caribe”, full report in Spanish

“The Landscape of Microinsurance in Sri Lanka 2016”

“Insights on Mobile Network Operators as a distribution channel for microinsurance in Asia”

Project partners: MicroInsurance Centre, Microinsurance Network



Microinsurance Learning Sessions

“Microinsurance business models for Africa”

Diani/Mombasa, Kenya, 6–7 April 2016

80 delegates, largely from African insurance companies and regulatory authorities

Project partners: ILO’s Impact Insurance Facility (in cooperation with AB Consultants), Insurance Regulatory Authority of Kenya (IRA), Association of Kenyan Insurers (AKI), Centre for Financial Regulation and Inclusion (Cenfri), Microinsurance Network, Africa Re



Microinsurance Learning Sessions

“Paving the way for financial inclusion”

Cairo, Egypt, 30–31 May 2016

150 delegates from insurance companies, regulatory authorities and donor organisations

Project partners: German Society of International Cooperation (GIZ), Making Finance Work for Africa (MFW4A), Microinsurance Network, SANAD Fund for MSME’s Technical Assistance Facility
Cooperation partners: Egyptian Financial Supervisory Authority (EFSA), Insurance Federation of Egypt, Microfinance Federation

“Africans are exposed to very many risks – both natural and man-made. And they have almost no access to insurance solutions. We must change this!”

Microinsurance Learning Sessions, Kenya

Mobile technologies and innovative approaches open up new markets

Microinsurance Conference



Jagath Alwis, representative of IASL and Sri Lanka's Minister of Finance, Ravi Karunanayake, open the 12th International Microinsurance Conference.

In recent years, microinsurances have improved the living conditions of millions of people all over the world. Continuous improvement and the increasing use of new technologies have changed the products and made it possible to attract new customer groups.

The number of microinsured is rapidly climbing in many developing and newly industrialising countries. As a result, low-income population groups are able to insure themselves against the most urgent risks. The policies thus make an important contribution to economic development and the fight against poverty.

To ensure that the microinsurance market continues to develop successfully, providers need to adapt their products to the specific requirements of their target groups. It is crucial that the policies are understandable and inexpensive. The increased use of technology provides decisive impulses – for improved data management and more efficient claim processing and customer support.

New technologies as a driving force

Life and accident insurance continue to dominate the market. Solutions offering protection against natural disasters or damage to property are still rare. However, the supply chain has been undergoing change. In Kenya, for example, which has the largest microinsurance market in East Africa, the areas of health, non-life and agricultural insurance have recently grown significantly. This was demonstrated by the Landscape Study on Africa, published in full by the foundation and its partner organisations in 2016.

Technologies such as mobile payment systems, smartphone apps, biometric identification and the use of drones and remote sensing are game changers with the potential to increase insurance provider efficiency and lower the transaction costs. Mobile network operators (MNOs) also have a decisive influence on cost-effective distribution. The insurance companies, which themselves have very limited distribution possibilities, benefit from the extensive networks of the mobile operators. For the MNOs, in turn, the additional offer of insurance services results in increased customer loyalty. This distribution channel is already very widespread, especially in the countries of sub-Saharan Africa, but Asia is making great strides in catching up. According to the Landscape Study on mobile insurance in Asia published in 2016, BIMA and MicroEnsure – the two leading companies on the mobile insurance market – today reach more than 40 million people.



The Landscape Studies are updated regularly and usually focus on one continent or an entire region. They present the key data on microinsurance, trends and past developments for each specific country. In their entirety, they form the database for the “World Map of Microinsurance”. To ensure the successful development of insurance policies, the risks must be known precisely. The studies contribute to this. The foundation finances and publishes the studies in cooperation with the Microinsurance Network and other partners.

→ www.munichre-foundation.org/home/Microinsurance/MicroinsuranceLandscape

Microinsurance in Sri Lanka

Landscape Studies I

Microinsurance was initially launched in Sri Lanka as a service to support the microfinance sector. With almost one quarter of the population living on less than US\$ 2 a day (World Bank Statistics, 2015), it was found that health is the biggest risk faced by poor households, followed by property risk, a consequence of the tsunami that hit the country in 2004. Microinsurance policies issued (1.46 million) reached 6.9% of the total population in 2015. Sri Lanka currently has no special regulatory provisions for microinsurance.

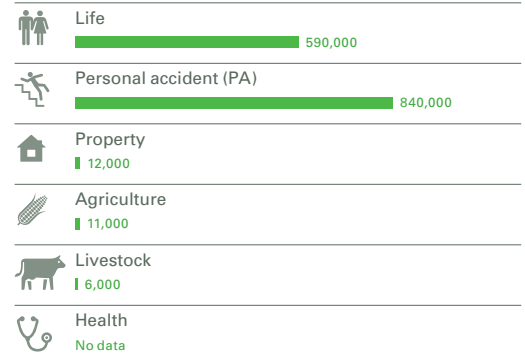
MI gross written premium reported (US\$)

16 m

MI policies issued

1.5 m

Lives covered per type of product



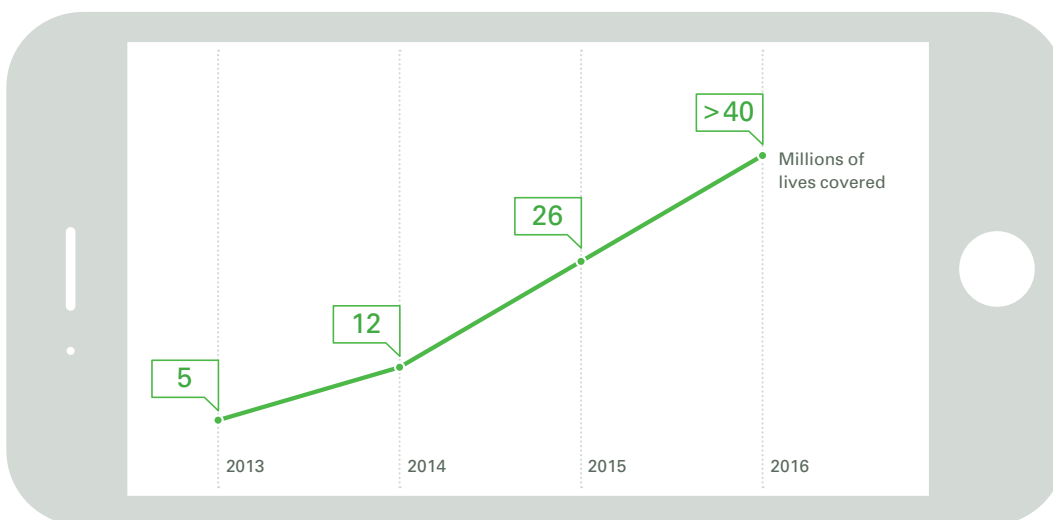
Source: Munich Re Foundation 2017, own blueprint; basis for data: Munich Re Foundation and MIN (2016): The Landscape of Microinsurance in Sri Lanka 2016

Microinsurance outreach through mobile network operators in Asia

Landscape Studies II

Over the past three years, the number of (micro-)insurance policies distributed via mobile phones has almost doubled annually. The boundaries between low- and high-income customers are blurred.

Mobile technologies, which five years ago played almost no role at all, today have the potential to restructure existing distribution channels and reach out to new customers.



Source: Munich Re Foundation 2017, own blueprint; basis for data: Munich Re Foundation and MIN (2016): Insights on Mobile Network Operators as a distribution channel for microinsurance in Asia



Left: Some 400 participants from roughly 50 countries attended the conference.

Below: Several organisations, including the Microinsurance Network, presented their work at the International Microinsurance Conference.



Innovation and cooperation are the keys to success

Cooperation between the most important stakeholder groups – insurance companies, regulatory authorities and distribution channels, such as MNOs – remains the driving force behind the expansion of the market. Conceptual development and adaptation of the legal framework are top priorities in this respect. Thematic working groups within the framework of the “Access to Insurance Initiative” (A2ii) or the Microinsurance Network address such things as capacity building and regulatory issues. Along with the Microinsurance Network, Munich Re Foundation also collaborates with local insurance associations to organise the world’s largest conference on microinsurance. In 2016, the 12th International Microinsurance Conference was hosted in Sri Lanka in cooperation with the country’s national insurance association, IASL.

Tang Loac, the founder of TongJuBao, demonstrated at the conference how his peer-to-peer platform can break up traditional insurance market structures. The idea is that registered users come together to form groups and pay an annual premium. If losses occur within the community, the premium money is used to pay compensation to the claimant. If the group suffers no losses, it receives a certain percentage of the premiums as dividends. Transparency is a priority: all users are regularly informed about any losses that occur, and can rely on rapid payments if they are personally affected themselves. The basic principle is reminiscent of the risk diversification models that are also used by traditional funeral societies in Africa. It proves that embedding traditional approaches in a modern framework can produce very attractive and marketable products.

Membership in an insurance cooperative

Microinsurance in practice

The field trip of the 12th International Microinsurance Conference took the participants to Nawagamuwa, a small community near Colombo in Sri Lanka. The people here not only reap the benefits of a nation-wide cooperative in daily life but also, and in particular, when unforeseen things occur.

Sanasa is a cooperative movement in Sri Lanka dating back to 1906. In essence, it is a savings and microcredit organisation. The Sanasa microfinance network today links approximately 8,500 cooperatives with each other across the country and reaches more than three million people. Sanasa Insurance Company Limited (SICL), founded in 1989, has close connections to the Sanasa movement. It started out as a funeral and accident insurance for poor families. It later added more insurance products. The premiums are surprisingly low, often only a few cents. The life insurance division, which has been in operation since 2003, has experienced a great boom. Starting out in 2003 with just 133 insured, the business has grown to almost 175,000 policy holders in 2014.

Insurance for people with low incomes

Today, SICL offers a wide range of insurance solutions for people with a low income: non-life insurance, automobile liability, animal and even weather index insurance. SICL has not only received international awards for its work, but also the highly acclaimed prize for “Best Innovation in the Agriculture Sector 2014” in its own country. Together with the Global Index Insurance Facility of the International Finance Corporation (IFC), it developed a low-cost weather derivative for the agricultural sector to offer protection against drought and flood losses – for 15,000 small farmers.

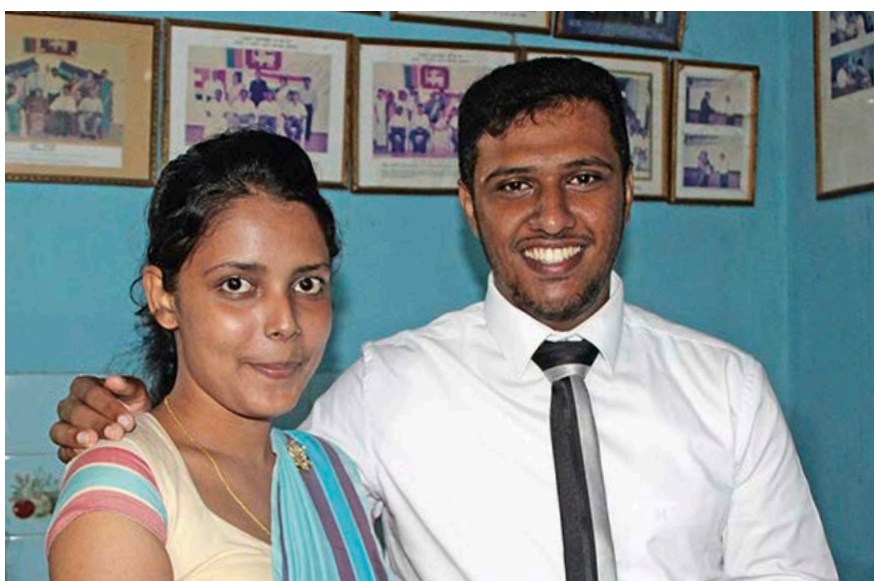
Sanasa – A strong community

The Sanasa Cooperative in the village of Nawagamuwa has roughly 2,000 members. It organises sporting events, festivals and religious ceremonies. Children receive a subsidy for school education, health services are also offered. “Social cohesion is important to us”, says Imesha Prabani, the daughter of the cooperative’s manager. “We help and support each other.” Membership costs a one-time fee of 1,500 Sri Lankan rupees (just under €10). The members meet once a month. Members who have been in the cooperative for 40 years benefit in particular. Sanasa pays them a monthly pension of 1,000 Sri Lankan rupees (approximately €6.30). It is not a lot, but it makes life easier in old age.

Help after serious accident

Sugith is 42 years old and lives in Nawagamuwa. He is a member of Sanasa and would like to set up a small newspaper shop. To do this, he took out a loan of approximately €4,500 from the cooperative bank. This allowed him to implement his business plan step by step. Then he had a terrible accident. “I was a passenger in a truck. Suddenly, we collided with another truck. I was seriously injured, my right leg was broken in several places. I still cannot walk well to this day – perhaps I never will again.”

Accidents like these cause poor people, in particular, to fall deeper and deeper into poverty. They are forced to borrow money and pay it back at high interest rates. This is why it is important to have a microinsurance. “The Sanasa insurance came to my aid and paid my microcredit of 3,500 Sri Lankan rupees a month (roughly €22). Now I can continue to pursue my goal of becoming self-employed with peace of mind”, says Sugith. Shashmi Prasadika and Chamindu Nipun, who also live in Nawagamuwa, follow the conversation attentively. They also want to become members. “The cooperative offers so much – everyone profits from it”, says Shashmi. “I can even take out insurance inexpensively to secure my livelihood in the case of illness or an accident”, she tells us happily.



Shashmi and Chamindu from Nawagamuwa want to become members of the cooperative as the solidarity of the group offers many benefits.

To ensure successful further development, microinsurers require a long-term perspective. The key to sustainability and profitability is to keep claims expenses and other expenditure items under control. Partnerships with other stakeholders, such as MNOs and investors, can help meet the challenges more easily. Range and efficiency can be enhanced by using the right technology – especially mobile phones. “The ‘uberisation’ of the insurance industry is an opportunity”, says Doubell Chamberlain, managing director of the research organisation Centre for Financial Regulation and Inclusion (Cenfri). In the same way that the US start-up, Uber, has revolutionised the taxi industry, a new application could also facilitate access to insurance-relevant services. For example, in-app certified and rated local damage assessors could be selected and commissioned online, thus saving the trouble of having someone flown in from a central office.

Adapting framework conditions

The changes in the industry offer new opportunities while at the same time creating new challenges. The regulatory environment for microinsurances needs to keep pace with technological developments so that companies can also move beyond the traditional approaches. For example, more and more vendors are using a mobile, cellphone-based registration system allowing contracts to be concluded easily and without paper. This reduces the transaction costs, and policies and payments can be checked in real-time. The technology is user-friendly and is usually accepted and trusted by the customer, which is not always the case with some of the traditional solutions. If the national regulatory authorities fail to react to this development, it prevents innovations that can boost the market.



Left: Sammy Makove, Kenya's Commissioner of Insurance, opened the conference on behalf of the Treasury.



Below: Interactive workshops were held as part of the Micro-insurance Learning Sessions.



Approximately 150 participants attended the Microinsurance Learning Sessions in Egypt.

According to A2ii, 18 countries already have special regulations on microinsurance. Another 22 countries, including Egypt, are developing such regulations. “Regulation should not be an obstacle to innovation”, contended Michael Kofi Andoh, director of Ghana’s insurance regulator. “The regulatory authorities can also take action themselves, especially in the field of education”, he added. Our Learning Sessions participants in Egypt agreed that the most important actors first need to be identified and then an education programme specifically tailored to their needs should be launched. The regulatory authority can also promote people’s confidence in insurance products. For example, by declaring that certain policies have been tested and approved. They can also appoint an ombudsman in the case of disputes. Insurance supervision involves more than just setting up an action framework. Education, trust and quality guarantees round off the potential range of services. Only if insurers consistently implement the technological innovations and are not hindered by the regulatory authorities can new market segments and target groups be opened up.

The annual International Microinsurance Conference is organised by Munich Re Foundation in cooperation with its partners. On a rotating basis the platform is carried out in Africa, Asia and Latin America. To further enhance transfer of knowledge, Learning Sessions with a specific regional focus are conducted. In 2016, the big conference took place in Sri Lanka and Learning Sessions were held in Egypt and Kenya. We conceive microinsurance as a valuable instrument to fight poverty. Specific knowledge is the basis for every successful progress.

→ www.microinsuranceconference.org/2016

Workers clean the huge parabolic mirrors of the Ain Beni Mathar solar power plant in Morocco. It is the first hybrid solar power plant of such an impressive size in the world, and meets approximately 10% of Morocco's electricity demands.



The global energy revolution — can we make it work?



An industrial park near the French seaport, Marseille.
Here, as elsewhere, air pollution is a problem. Renewable energies could help solve it.

The climate agreement negotiated at the World Climate Conference in Paris took effect on 5 November 2016. Its aim is to limit the worldwide increase in temperature to below two degrees Celsius by the end of this century. 128 countries have already ratified it. The next step will be to implement the challenging goals it sets up.

Stephan Kohler



Stephan Kohler
is chairman of the Advisory Board of the energy service provider GETEC. Until 2014 he was CEO at the German Energy Agency (dena)

Gearing the global economy to a climate-friendly strategy is a Herculean task. It not only represents a technical and economic challenge, but also requires socio-political reorientation. The global struggle to curb climate change is not being decided in Germany and Europe, but rather in countries such as China, India, in South America and in Africa. These regions are faced with the immense challenge of urgently needing an economic development that raises the living standards of billions of people. At the same time, however, it is essential that this development does not follow the example of the consumer societies in Europe and the US with their “throw-away” mentalities, which are largely responsible for causing the climate change over the past 100 years. However, for many people, the “western” way of life is precisely the type of living standard that they, too, want to achieve at all costs.

Climate protection primarily means opening up new energy efficiency potential. The International Energy Agency has come to the conclusion that, by the year 2030, energy efficiency measures, at over 50%, can make the biggest contribution to the reduction of CO₂ emissions worldwide – at comparatively low costs. The energy systems, therefore, need to be optimised on the demand side to achieve the most cost-effective system solutions in macro-economic terms. This requires an approach that is open to all kinds of technology: we must find the most efficient solution for each application.

If efficiency potentials are to be taken advantage of, the refurbishment and replacement cycles of buildings, machines and equipment must also be taken into consideration. Economic efficiency can only be achieved in this combination.

A system optimisation, as the name suggests, requires that all the components of the system are taken into consideration. For example, the development of photovoltaic and wind power stations must also take grid expansion and investments in storage technologies into account, along with the associated costs.

The growing demand for electrical cars means that the electrical power grids must be designed to ensure a reliable supply at all voltage levels – even in the cities. To allow a complete switch-over to electrical vehicles in Berlin, the entire electricity grid would have to be replaced. And this would also have to be completed within 30 years to implement the German government’s climate protection plan. At the same time, it must be guaranteed that exclusively CO₂-free electricity is used. The climate benefits of electromobility would otherwise be cancelled out. Only if we are open to new technologies can the global energy revolution be successfully implemented at the regional level.

The success of climate protection strategies depends, in particular, on widespread acceptance by the population. Which is also reflected in the strong resistance to the installation of power transmission lines in Germany. This is why I very strongly doubt that the German energy development scenarios – based on the 2050 climate protection plan – can be implemented successfully within the next 30 years.

Here is one example: between 420,000 and 530,000 megawatts of photovoltaic and wind power plants need to be built by the year 2050 in Germany to almost completely replace nuclear power, coal, oil and natural gas. So far, there are no realistic scenarios for the integration of such a huge electrical power system. This means that the survival chances of Germany as an export-oriented industrial location are hanging in the balance.

It will also be difficult to make the requisite resources available. Implementing the energy turnaround strategy at global level will require supplies of rare earths, platinum, gallium, germanium and copper or cobalt in the requisite amounts, but their availability is not guaranteed. In addition, geographical distribution creates new dependencies. This presents enormous challenges for countries that have few raw materials, such as Germany.

The global energy revolution can be achieved if it is pursued without ideological, technological and implementational restrictions. The optimum solution needs to be developed and implemented for each situation. The focus should not be on individual technologies, but on the most cost-effective options for avoiding CO₂. We need to motivate people! The success of a global energy revolution depends on their commitment.

The energy turnaround needs to take place all over the world. India is a key country. Women in the Indian state of Orissa learn in an DFID (Department for International Development) funded project, how to put small solar units together and use them in the household.



Climate change and education



2016 dialogue forums

“No energy for the turnaround?” Experts from science and politics discuss how to restructure the power industry.

Munich, January–May 2016

5 events with over 1,000 participants



Dialogue forum special

“Energy turnaround – Do something!” Dialogue forum special for students, trainees and pupils

Munich, 31 May 2016

100 participants

Project partners: Strascheg Center for Entrepreneurship at the University of Applied Sciences Munich

“Climate change and rainforests: impressions from Panguana”

Munich, 14 June 2016

120 participants

“Young researchers and entrepreneurs for climate protection” Klimaherbst München

Munich, 20 October 2016

100 participants

Project partner: Münchner Klimaherbst 2016



Presentations on foundation's topics

64 presentations by the foundation's staff at universities and schools, at conferences or other occasions



School projects

Energy School Munich

Munich, 2015/2016 school year

400 school children participate at primary and intermediate schools

Project partner: Green City e. V.



Joint university projects

University of Applied Sciences Munich: Seminar on “Water, climate, environment – on the sustainable management of global challenges”

Munich, ongoing seminar in winter and summer term

15 students per semester

Eberswalde University for Sustainable Development: themed week of the “Global Change Management” master's course

Munich, 4–8 April 2016

20 young researchers

Transdisciplinary seminar at Munich's Ludwig Maximilian University “Strengthening resilience against droughts in Bangladesh”

Munich, winter term 2015/2016

10 students at the research and teaching unit for human geography

Humboldt-Universität zu Berlin: “Disaster Risk Management and Sustainability” SLE (Centre for Rural Development) training

Berlin, 14 July 2016

20 post-graduate research students at the Faculty of International Cooperation for Sustainable Development

Bonn-Rhein-Sieg University of Applied Sciences Short Course: “Climate Risk Insurance” in cooperation with the World Bank and UNU

Sankt Augustin, 12–14 September 2016

10 international post-graduate research students

Virtual Academy (VA) of Sustainability at the University of Bremen

Innovative teaching concept and interactive learning platform for the promotion of education in sustainable development

“The challenges posed by climate change are so great that it would be foolhardy to believe that one person could solve the problems on their own.”

Dialogue forum special within the framework of the Klimaherbst München

No energy for the turnaround? 2016 dialogue forums



Sebastian Sladek, managing director of Elektrizitätswerke Schönau Vertriebs GmbH, knows what he is talking about. He sees great opportunities in a decentralised energy economy that integrates citizens from the very start.

The 2016 dialogue forums were dedicated to the sustainable transformation of our energy supply systems. At first glance, the triumph of the renewable energies appears obvious. Wind turbines are springing up like mushrooms, solar plants continue to sell well despite declining subsidies.

However, a closer look reveals that there are problems in many areas: for example, there are not enough high-voltage power supply lines to transport electricity from the north to the south of Germany, where it is needed. The reform of the transport sector, which accounts for around one-fifth of CO₂ emissions, is not even in the early stages of implementation, and electric mobility plays practically no role at all on our roads. And, as far as the more efficient use of energy is concerned, the potential offered by our own four walls and workplace is also far from exhausted.

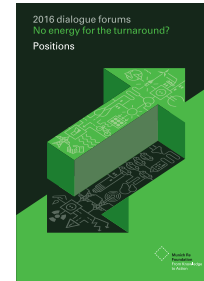
In addition to the main forums, we also addressed issues related to climate protection and the effects of climate change at two dialogue forum specials. As always, we have summarised and published the most important findings from the dialogue forums in our “Positions” brochure. It can be downloaded from our website in pdf format. Two concise statements from this publication can be found on the following pages.

The ecological conversion of our energy system is having a positive effect on growth and employment. The economic stimuli generated by renewable energy expansion and measures for greater energy efficiency by far outweigh the negative employment effects in the conventional energy sector and related branches of industry. “The energy turnaround has created 390,000 jobs in Germany”, explained Jürgen Karl from the Friedrich-Alexander-Universität Erlangen-Nürnberg. Not least because German companies such as Siemens benefit immensely from the export of technology. However, the general public is not really aware of the positive second-round effects.

Still, Germany must take care that it does not get left behind by the competition from Asia, as it did in the case of solar panel technology. The role that Germany will play in e-mobility also remains open. “If we want to keep our prosperity, Germany must maintain its leading position as a place for engineers”, warned Franzjosef Schafhausen from the Ministry for the Environment. If Germany succeeds in becoming the leading provider and the leading market for electromobility, this could create up to 30,000 new jobs.

Below: Henning Kagermann (acatech), Ulrich Kranz (BMW) and Gerd Lottsiepen (VCD) discussed the opportunities offered by e-mobility. If it is consistently promoted and politically desired, it can constitute a major building block of the energy turnaround.

Right: During the 2016 dialogue forum, the participants were able to visit an exhibition of the German Energy Agency (dena) at the Munich Re premises. Interactive modules explained the energy turnaround and demonstrated how each individual person can contribute.



A detailed summary of the 2016 dialogue forums can be found on our website and in the “Positions” publication.

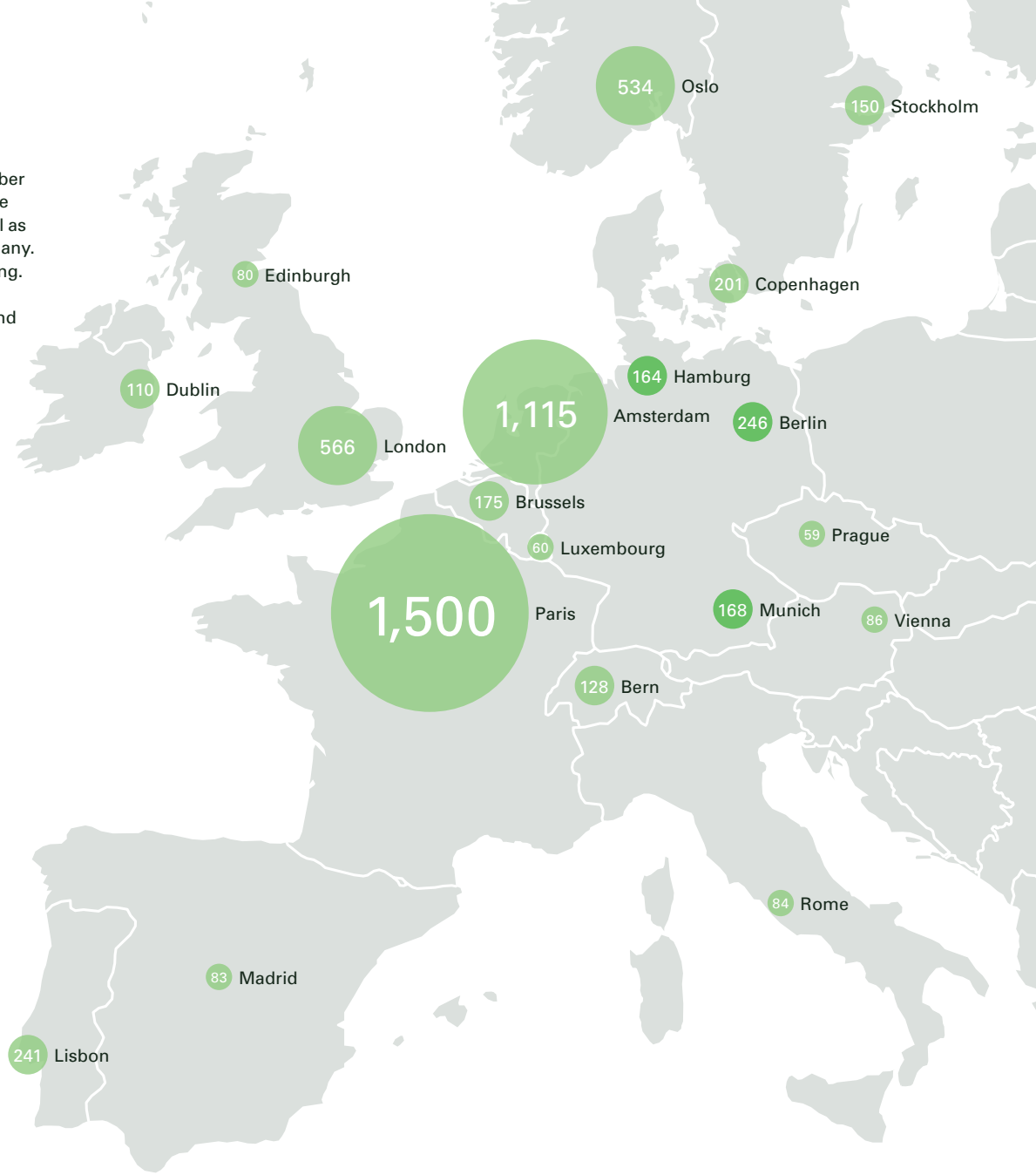
→ www.munichre-foundation.org/home/MediaCentre



Charging constraints

The map shows the number of charging stations in the European capitals as well as in selected cities in Germany. The differences are striking. Germany wants to be a pioneer but falls far behind its own expectations.

Source: Munich Re Foundation 2016, own blue print; data basis: Chargemap SAS



One obstacle standing in the way of electromobility is the lack of public charging stations. The requisite charging-station infrastructure is still almost inexistent in Germany. Even in most of Europe's metropolis cities, the number of charging points available does not exceed the mid three-digit range. Paris is a notable exception. In relation to the number of inhabitants, Amsterdam and Oslo have an even denser network of charging points. Without the requisite infrastructure, we are not likely to achieve the goal of having one million electrical cars on the roads in Germany by 2020. The number of vehicles licensed so far lies far below expectations. There are currently only around 50,000 electric vehicles on Germany's roads. Nevertheless, Henning Kagermann still looks to the future with optimism: the president of the German Academy of Science and Engineering (acatech) is confident that "Electromobility will arrive with a vengeance between 2020 and 2030". In his opinion, the future will not only bring electrical but also networked and autonomously driven vehicles.



Above: Juliane Diller (2nd from right) with her team in Panguana national park. The analysis of biodiversity and loss of species is an important task in the tropical forest. Climate change is increasingly impacting flora and fauna.

Left: For some years, Munich Re Foundation has been addressing special topics in its dialogue forums special. In 2016, we discussed climate change and climate protection in two different special forums.

Dialogue forum special: Climate change and the tropical rain forest

The Panguana Research Station in the tropical rain forest of Peru has been in operation since 1968. The station's particular appeal lies in the diversity of biotopes in its immediate vicinity. Panguana is a biodiversity hotspot. Biologist Juliane Diller has been in charge of the station for many years. However, increasing human encroachment and climate change are taking their toll on the tropical rain forest. "The rain forests are huge carbon sinks. These natural carbon reservoirs are being lost to deforestation and fire clearance, and immense quantities of CO₂ are being released into the atmosphere as a result", warned Peter Höpfe, head of Geo Risks Research/Corporate Climate Centre at Munich Re.

Some parts of the rain forest have already become dry forest, and biodiversity is on the decline. Diller can already see the first impacts: streams are increasingly drying out, one mussel species has already disappeared. "The rain forest makes the impression that it will last forever. But it won't", warned the biologist.

For further information on this issue:

→ www.munichre-foundation.org/home/DialogueForums/2016DialogueForums

Award for our project partner Energy School Munich

How can you cook pasta without using any electricity at all? And does it taste differently then? The Energy School Munich run by Green City e.V. has been out and about this year again visiting primary and intermediate schools. They came equipped with a programme of workshops on climate protection, how to save energy, renewable energies and professions in the field of regenerative energy generation. The Munich environmental organisation uses this programme to demonstrate that climate protection is fun and also possible without forgoing quality of life. A worthwhile commitment: Green City was recognised in August 2016 for its education projects and sustainability practices within the framework of the UNESCO Global Action Programme on “Education for Sustainable Development” (ESD).

Through its projects, the organisation helps to anchor sustainability in the structures of the German education system and thus plays a pioneering role, according to UNESCO. Munich Re Foundation has been supporting the Energy School Munich for many years now.

Veronika Fröhlich from Green City’s environmental education team is delighted about the prize: “With projects such as the Energy School Munich, we show how children and young people can influence a sustainable future, even through simple changes in behaviour, and thus lay the foundation for an environmentally conscious life. The fact that we have now been recognised as a place of learning by UNESCO makes us proud”. We are very pleased for our project partners and congratulate them on this achievement.

For further information on this issue:

→ www.munichre-foundation.org/home/EducationClimateChange/EnergySchoolMunich

→ www.greencity.de



Above: Pupils concentrate sun rays with the help of a parabolic mirror and bring water in a pot to the boil. They especially love cooking “sun sausages”.

Below: The innovative workshops of the Energy School Munich received the “Learning place with distinction” prize from the Federal Ministry of Education within the framework of the UNESCO Global Action Programme, “Education for Sustainable Development”.

“Sustainable disaster risk reduction” video tutorial is online Virtual Academy of Sustainability

The Virtual Academy of Sustainability developed at the University of Bremen offers some 500 videos with lectures and tutorials on climate change, sustainable corporate management, marketing and the great transformation of society. Munich Re Foundation supports the project financially and has contributed its own teaching videos on the topic of “Global natural disasters – Sustainable disaster risk reduction and resilience”.

For further information on this issue:

→ www.va-bne.de



The foundation’s chairman, Thomas Loster, demonstrates the manifold aspects of sustainability in a video lecture for the Virtual Academy. Resilience research is a priority topic of the learning module.

Dialogue forum special – Münchner Klimaherbst 2016:
Innovations for climate protection

The University of Applied Sciences Munich’s Strascheg Center for Entrepreneurship (SCE) champions the cause of supporting entrepreneurs with innovative ideas. The energy sector, in particular, offers a lot of opportunities. Besides training students and supporting good ideas, the SCE also focuses on finding cooperation partners. “As a university, we can bring start-ups and well-established companies together and thus make a significant contribution to the acceptance of innovative ideas”, says CEO Klaus Sailer.

As a globally operating reinsurer, Munich Re has been addressing the issue of climate change for years. This is because, on the one hand, ever increasing losses threaten the insurers’ business models, while on the other, insurance companies are seen as part of the solution when it comes to raising risk awareness and identifying possible new solutions.

For further information
on this issue:

→ www.sce.de

→ www.klimaherbst.de

Prize for Foundation work Joint university projects

On 23 June 2016, University of Applied Sciences Munich awarded Munich Re Foundation’s CEO, Thomas Loster, the Oskar for “Quality in Teaching”. He received the award for his seminar on “Water, climate, environment – on the sustainable management of global challenges”: according to the jury, the seminar conveys knowledge and creates awareness using entertaining teaching formats with “Wow effects”.

The Bavarian Minister of Cultural Affairs was a keynote speaker at the solemn Oskar ceremony at the University of Applied Sciences Munich.

The foundation supports sustainability and climate education. We speak in schools and at universities about our work and the wide range of topics involved.



Source: Munich Re Foundation 2016, own blue print



Carina Wollmann from BMWi, Lisa Frieg from Stadtwerke München, and Florian Henle from Polarstern GmbH discussed how the energy turnaround can be implemented at different levels with the students of the University of Applied Sciences Munich. The private sector, the public sector and the major energy suppliers have wide-ranging and strong leverage potential.

“In the case of renewables, the insurance industry is able to support developments in technology by assuming risks”, explained Thomas Bischof, head of corporate development at Munich Re. Other solutions are aimed at dealing more effectively with the impacts of climate change. The key term here is climate risk insurance. “Innovation is an elementary component for us. In areas where we come to our corporate limits, we focus on partnerships with universities or start-ups”, says Bischof.

One thing is clear: The challenges posed by climate change are so great that it would be foolhardy to believe that one person could solve the problems on their own. Politics will not stop climate change. Ultimately, it is the many small and good ideas that provide the necessary stimuli for a future worth living.

In our dialogue forums, we address contemporary issues. Politicians, scientists and persons concerned take a look behind the scenes and engage the audience in discussion. The dialogue forums have been held regularly since 2005. They are designed to heighten awareness of the subjects we focus on, such as demographic trends, risk perception, climate change and development policies.

→ www.munichre-foundation.org/home/DialogueForums

A man protects himself against the mid-summer sun in the south of Bangladesh. He is standing on a sand dyke that protects parts of the Dalbanga South village against monsoon floods. The monsoon is becoming stronger year by year in many parts of the country; more and more usable land is being threatened.



Risk management, climate change and resilience



Members of the foundation's project staff and Resilience Academy students visit Dalbanga South in Bangladesh.

The Paris 2015 climate agreement is considered a great success in the fight against climate change. The United Nations Sustainable Development Goals (SDGs) were adopted in the same year. In Sendai, Japan, almost 190 countries agreed on a new strategy for disaster risk reduction. Robert Glasser, director of UNISDR, explains links between the programmes.



Robert Glasser

Director of UNISDR sees great opportunities in the cooperation between development organisations and the private sector. Many risks can only be managed jointly.

You have been leading UNISDR for one year now. What characterises the work of this organisation?

Robert Glasser: UNISDR has around 120 staff, spread around the globe. For an organisation of our relatively small size within the UN system, I think we punch above our weight when it comes to our convening and advocacy power, and our work in building partnerships that are helping to curb disaster risk and increase resilience.

The knowledge about natural disasters is constantly increasing. Still, we need to do more for better prevention. How can we get more efficient action on the ground?

The “natural” part of the “natural disasters” label is a misnomer. While the hazards themselves, such as floods, droughts, or earthquakes, are natural, it is risk drivers that can transform their impacts into a disaster. So the recipe for more efficient action on the ground is to take into account, and try to reduce, the full spectrum of risk. That means tackling poverty, exclusion, bad urban planning and land-use management, environmental degradation, as well as bridging risk gaps in governance and legislation at all levels, and making sure public and private investment decisions are risk-sensitive. And to achieve that, we need data that tells the real story of risk, so that we can monitor how well we are reducing it.

The new agendas, e.g. the Sendai Framework or the SDGs are well connected. What role do the COP agreements play, e.g. the famous Paris decisions at COP21 when it comes to disaster prevention?

Like the Sendai Framework and the SDGs, as well as the Addis Ababa Action Agenda on financing for development, the World Humanitarian Summit declaration and the New Urban Agenda, the Paris Agreement is a building block of the overall 2030 Agenda for Sustainable Development. Each of these agreements is important in itself, and links with the others to form a coherent package. In the Paris Agreement, governments underlined how critical it is to avert, minimise and address losses and damage associated with the adverse effects of climate change, such as extreme weather hazards or slow onset events, and the role of sustainable development in achieving this.

The UN, governments and NGOs are increasingly interested in public-private partnerships. Many good examples exist. How does the UNISDR see this issue today?

The private sector is a critical player in disaster risk reduction, given that it is responsible for up to 80% of investment in all urban infrastructure. Disaster losses will continue to mount unless disaster risk management becomes a core part of business strategies. And the resilience of businesses to hazards is a key factor in the resilience and recovery of the communities and economies of which they are part. At the same time, private sector expertise in reducing disaster risk can be leveraged by the authorities at all levels, notably local government. Public-private partnerships are an essential tool for these processes. That is precisely why we and our partners, among them Munich Re, founded the Private Sector Alliance for Disaster Resilient Societies (ARISE), at the end of 2015.



The children at the school in Dalbanga, in the south of Bangladesh are the key to better risk management in the future. They are trained as helpers in crisis situations and learn in a playful approach how to protect themselves and their families against flooding and cyclones.

Disaster prevention and resilience



RISK Award India

“Community Self-Assessment and Planning in Pune”

March 2015 – February 2017

Project partner:
AIIILSG

“Children are the risk managers of tomorrow! Their training already begins in school.”

RISK Award India



RISK Award Chile

“Inclusive Disaster Risk Management in Peñaflores”

September 2014 – June 2016

Project partner:
ONG Inclusiva



2017 RISK Award

Call for proposals on
“Information and Communication Technology (ICT) for DRM and DRR”

IDRC Davos, 30 August 2016

Project partners:
UNISDR, GRF Davos



Gibika

“Livelihood resilience for Bangladesh”

September 2012 – June 2018

Climate change adaptation in seven risk zones

Project partners:
ICCCAD, UNU-EHS



Building Pioneers

From Knowledge to Action
“New building bricks for Bangladesh”

August 2016 – June 2017

Project partner:
Building Pioneers



Resilience Academy

“Enhancing resilience to minimize Loss and Damage – Providing knowledge for the UNFCCC”

Abbey of Frauenwörth
4 – 10 September 2016

30 delegates, 15 countries, politicians, researchers, journalists and NGO staff

Project partners:
ICCCAD, UNU-EHS

Climate agreement – Searching for fairness Resilience Academy



Rivers are important lifelines in Bangladesh, but they also harbour substantial risks. They meander strongly and are always changing their course. Rapid population growth is an additional hazard. It exposes the settlements along the waterways to ever increasing risks.

Resilience is aimed at strengthening the resistance and regeneration capacities of the people or the infrastructure. Risk management is an important key word. Something that sounds quite simple can quickly become complicated in reality.

The perception of opportunities and risks

British scientist Terry Cannon from King's College, London demonstrates this at the Resilience Academy using a simple example: risks are often perceived very differently. A fisherman, for example, sees his house, which is situated near a river threatened by flooding, in practical terms. It is not far from the fishing grounds, the river feeds him and also delivers water for the vegetable patch. And, because he can easily reach other villages in his boat, the fisherman can earn extra money by selling his catch. The location is good!

However, when aid organisations assess the situation, they most often come to a different conclusion, because the risks are usually the most important aspect for them. Not only is there a risk of flooding and erosion in the vicinity of rivers, the flat land also offers no barriers against heavy rainfall and flash floods. For them, the location is a bad choice.

The differences in perception and weighting of opportunities and risks often means that the local population and the development organisations cannot find a good basis for cooperation. Warning systems are one possibility of reducing the risks in such locations. However, in some cases, people would be better advised to leave their habitat altogether. Unfortunately, the people involved often talk past each other so that the goal of creating more resilience is not achieved. In addition to reducing risks, the resilience of people and communities also needs to be strengthened. Coping and adaptation mechanisms that can be implemented as quickly as possible are needed.

Gibika – The emergency systems are taking effect Resilience in practice I



School children and young people play an important role in the cyclone warning system in the south of Bangladesh. They learn from an early age what the various warning signals mean.

জীবিকা
Gibika
Livelihoods

On 21 May 2016, Cyclone Roanu made landfall near the port of Chittagong on the south-east coast of Bangladesh and caused serious damage. Dalbanga South, a Gibika community of our project, was also hit. However, the villagers were very well prepared.

Bangladesh often has to cope with cyclones. The devastating tropical storms usually form in the Indian Ocean and are drawn by the coastline, which acts like a funnel, into the Bay of Bengal, where they then make landfall. Roanu caused serious damage. Roughly 20 kilometres of dams were destroyed, several villages flooded, and well over 50,000 houses damaged. 27 people lost their lives. Approximately 1.3 million people were affected directly by the cyclone, half a million people could be brought to safety.

Protective measures are taking effect

Every life lost is one too many. Nevertheless, the declining number of deaths in comparison to previous cyclones is a great improvement, the protective measures are taking effect: over 300,000 people died during Cyclone Bhola in 1970. During a storm of similar intensity in 1991, more than 100,000 people lost their lives. Cyclone Sidr in 2007 claimed 3,500 lives. At that time, 70 people living in the small village of Dalbanga South alone were killed. Every storm is different, direct comparisons are not possible. However, in the

case of Roanu, the successes achieved are obvious. Together with the local inhabitants, the project team has begun to improve the existing cyclone warning system. For early warning to be effective, the villagers need to develop a greater awareness of the various risks. Regular drills are aimed at making the processes to be taken in the case of an emergency automatic and, above all, at integrating the children and young people. We would also like to not only increase the number of voluntary helpers but also the range of the warning system. Implementation of the measures began at the right time: the village was better prepared this time round.

Our project is named Gibika, the Bengali word for livelihood, and plans to help people in Bangladesh to deal better with the impacts of climate change and natural disasters. Intensive research is being carried out at seven locations in all; at one location, knowledge is being put into practice.

→ www.munichre-foundation.org/home/DisasterPrevention/Gibika-Bangladesh



The Resilience Academy participants come from many countries around the world. They get to know new perspectives in a collaborative dialogue, which often leads to completely new solutions.

The prerequisite for this is that the traditional living space remains habitable and usable. This is not the case with severe coastal erosion or thawing permafrost soils. Living spaces are lost. As adjustment processes make little sense in such cases, the United Nations Convention on Climate Change, UNFCCC, launched the “Loss and Damage” programme to keep track of unavoidable damage and losses.

A matter of evaluation

One challenge faced by this programme is that by far not all damage can be expressed in terms of money. How can you determine the value of being able to farm, for example, or of psychological illness caused as a result of losing your home, or due to weakened social structures? How can the services provided by an intact environment that supports ecosystem services be evaluated?

New specialist publications with findings and figures

The participants of the 2016 Resilience Academy addressed this problem. During the workshops and discussions, it became evident that the unquantifiable damage and losses (non-economic loss and damage) will probably not be represented adequately in future agreements because of their complexity and difficulty to grasp in concrete terms. The consequence would be gaps in the compensatory payments that people need, to build up a new existence elsewhere. Which in turn affects those people, in particular, who generally have few possibilities of adapting to the impacts of climate change because of their poverty.



Left: Operation of the Building Pioneers' manual press can be learned relatively quickly. Ten workers can manufacture up to 2,000 bricks a day. 3,000 bricks are enough to build a small house.

Above: The pressed blocks can be moulded into various shapes. This makes them extremely stable, for example, in the case of earthquakes.

Building Pioneers – New building bricks for the country of chimney stacks

Building Pioneers is a charitable organisation that supports the development of compressed, stabilised earth blocks, or CSEBs. Due to their special fitting CSEBs can make buildings significantly more stable. In addition, the houses are inexpensive, environmentally friendlier and, most of all, safer when natural disasters strike than most of the typical housing in poorer countries. The organisation's founder, Ava Mulla, is a participant at the Resilience Academy, where she receives valuable input. She can also establish new contacts for her project in Bangladesh. Both aspects contribute to her success.

From the geological perspective, Bangladesh does not have many resources. This also applies to stone and rock strata that could be used for infrastructure or housing. Therefore, for generations, thousands of brick yards across the country have been baking bricks to build streets, houses and walls. The consequences have been dramatic: The process requires huge amounts of fuel, mostly in the form of charcoal. This is not only detrimental for the forests but also leads to immense CO₂ emissions. Building Pioneers is not a competitor for the established brick yards – quite the contrary: they want to talk to the ministries, associations and factory owners, and convince them of the advantages of the environment-friendlier CSEB technology. Munich Re Foundation promotes this enterprise within the framework of the Resilience Academies and supports it financially.

The goal of the Resilience Academy is to intensify the dialogue between the academic world and the policy-makers and practitioners, and to develop new insights during an intensive training and workshop week. The proposed solutions will be gradually published in specialist publications. They will examine the question of how climate agreements can be made fair in detail. You can find regular updates of the papers on the Munich Re Foundation website.

→ www.munichre-foundation.org/home/DisasterPrevention/Resilience-Academy

RISK Award – Reducing life risks Resilience in practice II

Pune: Risk analysis for slums

The All India Institute for Local Self Government (AIILSG) received the RISK Award in 2015. The organisation promotes the principle of urban governance and wants to see it anchored more firmly in urban development practice. It promotes the increased involvement of private persons, private institutions and companies in the planning, implementation and funding of public tasks. Pune has more than 440 slums, each with several thousand residents. Approximately one fifth of Pune's residents lives on or below the poverty threshold.

Spellbound children watch a street play in the streets of Pune together with their parents. The actors make disaster risk reduction interesting by cleverly linking stories with information the children can learn from.



The centrepiece of the project is an innovative tool for risk analysis called the "Self-Assessment and Planning (SAP) Tool". It allows the people living in the slums, who frequently cannot read, to analyse risks independently. Instead of written questionnaires depicting the various disaster scenarios, a sign language was developed on the basis of self-explanatory emoticons. Even illiterate residents can now easily assess their situation and communicate it to the project partners. The method is intended to serve risk analysis in many poor regions of India and beyond.

However, risk assessment on its own is not enough. What counts is reacting properly in the case of a disaster: regular training is a must. AIILSG, therefore, strives to introduce the subject to children as early as primary school. As appropriate for the target group, the content is conveyed in a playful approach, for example by means of street theatre or puppet games.

Painting competitions or exercises in the community centres are further possibilities. As the programme is fun for the children, they absorb and remember its messages, and can also bring the knowledge they have acquired home with them. The RISK Award project is being launched in ten slums in Pune. However, in the long term, the measures will be extended to include all of the city. The potential is tremendous.



Peñaflor: Risk management and inclusion

ONG Inclusiva, winner of the RISK Award in 2014, is working in Peñaflor in Chile to ensure that people with disabilities have a fair chance of being rescued in the event of a disaster. Approximately 100,000 people live in the city, 10% of them have disabilities. The environment is very often not adapted to their needs, starting with kerb stones that are not lowered, to public facilities such as the City Hall, which can only be accessed over a flight of steps. The situation in private homes is not much better: door frames are too narrow for standard wheelchairs, many entrances and sanitary facilities can only be reached by stairways.

As a result, residents with disabilities are forced to rely on permanent assistance. This may be possible to plan in daily life, but in the event of a disaster, when people need to be evacuated quickly, the chances of disabled citizens being rescued is substantially reduced. One of the project's aims, therefore, is to identify houses that have not been adequately adapted, and make them safe – even in the case of a disaster.

Inclusion concerns more people than simply those with disabilities. Children, old people and pregnant women are frequently not given adequate consideration in emergency planning. If all the groups who struggle with challenging life circumstances are included, it is no longer possible to speak of a minority. Almost half the population is affected.



Proposals for the RISK Award 2017

The focus of the RISK Award in 2017 is on innovative concepts and technologies for information transfer and communication (ICT). These technologies play an increasingly important role in disaster management and risk reduction. The more efficiently these new possibilities are used, the more people can be reached before, during and after disasters. The international jury reviews the submitted proposals and selects the most promising projects. The winner will be presented at the Global Platform for Disaster Risk Reduction in Cancun in May 2017.

Successful disaster risk reduction begins at the local level. With its prize money of € 100,000, the RISK Award promotes new concepts in the area of risk reduction and disaster management to increase the resilience of communities. We award the prize together with the United Nations Office for Disaster Risk Reduction (UNISDR) and the Global Risk Forum (GRF) Davos. For further information on this issue:

→ www.riskaward.org

Environmental performance 2016 — Promoting wind energy in India

CO₂ emissions are unavoidably generated as a result of our business operations and Munich Re Foundation projects, be they office activities, staff trips to project sites or participants travelling to our seminars and conferences.

As a foundation dedicated to climate protection, we record all the emissions produced and compensate for them through an offset project. In 2016, total CO₂ emissions resulting from the foundation's activities amounted to approximately 1,110 metric tonnes. Most of them, almost 1,030 tonnes, came from our events – mainly due to the participants' journeys to and from the venues. Emissions from office activities (electricity, heating) and business travel, at approximately 40 tonnes (4 %) respectively, were comparatively low.

Through renewable energy production, fossil resources are conserved. This benefits both the environment and the people.

Total emissions were down by 20 tonnes from those of the year before. This is due to the slightly lower number of business trips. The emissions generated by the foundation's offices and events remained roughly the same. CO₂ emissions from the International Microinsurance Conference in Sri Lanka, at approximately 950 tonnes, accounted for the largest proportion of emissions. This is due to the many flights undertaken by the over 400 delegates.

The offset project

Our founder, Munich Re, compensates for the emissions from the foundation's offices and the business trips of its employees. To offset our events, we buy CO₂ certificates from recognised and certified climate-protection projects. This year, we are supporting a windpower project in India. This fits in not only with the topics addressed by our dialogue forums but also with the location of the International Microinsurance Conference, as well as with our RISK Award project in Pune in India.

The Kaladonger wind power project in the Indian state of Rajasthan consists of 36 wind turbines with a total output of 75.6 megawatts. The project supports the economic and ecologically sustainable development of the power sector and also helps to reduce the electricity shortages in the region. Using wind energy avoids greenhouse gas emissions which would otherwise be caused by power production based on fossil fuels. The reduction amounts to more than 1.2 million tonnes of CO₂ equivalents.

Emissions since 2006 (CO₂ in t)



Emissions in 2016 (CO₂ in t)



Events	93%
Business travel	4%
Office activities	3%

Source: Munich Re Foundation, 2017, own blueprint

A detailed breakdown of the environmental performance and more detailed information on the offset project can be found on our website:

→ www.munichre-foundation.org/home/About-us/Environmental



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Microinsurance

Microinsurance Network
 German Society for International Cooperation (GIZ)
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 Georgia State University's Center for the Economic Analysis of Risk (CEAR)
 Centre for Financial Regulation and Inclusion (Cenfri)
 Munich Climate Insurance Initiative (MCII)
 African Insurance Organisation (AIO)
 Making Finance Work for Africa (MFW4A)
 Insurance Association of Sri Lanka (IASL)
 Insurance Board of Sri Lanka (IBSL)
 J.B. Boda (Group of Companies India and Overseas)
 Access to Insurance Initiative (A2ii)
 International Actuarial Association (IAA)
 World Bank Group
 Association of Kenyan Insurers (AKI)

MicroInsurance Centre

Insurance Regulatory Authority of Kenya (IRA)
 International Insurance Society
 Sri Lanka Convention Bureau (SLCB)
 Egyptian Financial Supervisory Authority (EFSA)
 Consultants for Microinsurance Partner
 Africa Re
 European Union
 Insurance Federation of Egypt (IFE)
 Egyptian Microfinance Federation
 Sanad Technical Assistance Facility
 Fog nets
 p(e)d world e.V.
 Dar Si-Hmad
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 Energy School
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RISK Award

Global Risk Forum (GRF)
 UN International Strategy for Disaster Reduction (UNISDR)
 ONG Inclusiva
 All India Institute of Local Self Government (AIILSG)
 Gibika and Resilience Academy
 International Centre for Climate Change and Development (ICCCAD)
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Imprint, sources and picture credits

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302-08997

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Design
Keller Maurer Design,
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Lithography
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Printed by
Gotteswinter und
Aumaier GmbH
Joseph-Dollinger-Bogen 22
80807 München

Sources

Munich Re Foundation, own
blueprint 2017; basis for data:
Munich Re Foundation and
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English

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2014 RISK Award – Peñafior, Chile: Inclusive Disaster Risk Management
English and Spanish

Positions 2016

dialogue forums: No energy for the turnaround?
German and English

Publications with partners and from projects

From Top-Down to “Community-Centric” Approaches to Early Warning Systems: Exploring Pathways to Improve Disaster Risk Reduction Through Community Participation
English

Resilience Academy Bulletin No.03/ June 2016
English

A people-centred perspective on climate change, environmental stress, and livelihood resilience in Bangladesh
English

The Landscape of Microinsurance Africa 2015
English

Egypt Microinsurance Learning Sessions – Conference Report
English

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Spanish



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Dialogue forum

"Migration – last resort or strategy?"

16 February

Dialogue forum

"Migration policy – from freedom of movement to the limits of humanity"

23–24 February

Mobile Insurance Conference in Douala, Cameroon

1 March

Dialogue forum

"Environmental and climate change – when homes are lost forever"

14–16 March

Microinsurance Learning Sessions in Hanoi, Vietnam

15 March

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

3–7 April

Themed week on Global Change Management with the Eberswalde University for Sustainable Development

4 April

Dialogue forum

"Integration – win-win for everyone!"

10 May

Dialogue forum

"Volunteer work – help where it is needed?"

24 May

RISK Award presentation ceremony at the Global Platform for Disaster Risk Reduction in Cancun, Mexico

1 October

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

16–20 October

Resilience Academy on "Livelihood Resilience and Loss and Damage" in Washington, USA

7–9 November

13th International Microinsurance Conference in Lima, Peru

From Knowledge to Action



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