Munich Re Foundation
From Knowledge to Action

2014 report

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RISK AWARD

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Cover page: Pupils on their way to school in Sariayakandi, Bangladesh. Education is an important pillar of further development, it is also the first step in many of our projects.

Dear Readers,

To provide effective aid for people at risk, Munich Re Foundation pursues a strategy that rests on three pillars: knowledge accumulation, education and direct help on the ground. In the past year again, we have achieved much in all three areas.

Young researchers at the Resilience Academy examined the question of how to help people in poor countries to cope with the problems ensuing from climate change, environmental change and demographic trends. Our Gibika project in Bangladesh shows how this can be put into practice. In this project, scientists analysed the situation on site and made concrete recommendations for flood risk communities that are presently being implemented (Page 10).

We made particularly good progress in our field of microinsurance operations. The 10th International Microinsurance Conference in Mexico with 400 delegates from more than 50 countries set a milestone. Learning Sessions in Cameroon, Tanzania and the Philippines completed the conference. They proved that the interdisciplinary conferences can make a valuable contribution in protecting people against crisis situations that threaten their existence. The condition for this, however, is that the conferences focus on the specific features of the regional markets and address current developments (Page 18—31).

We provide education and direct support at local level with our RISK Award, a highly endowed prize for disaster preparedness. It was presented to the Chilean organisation ONG Inclusiva, which dedicates its work to the needs of people with disabilities. Their special needs are usually given little or no attention in disaster prevention measures. In a pilot project, ONG Inclusiva therefore wants to set up more effective rescue and prevention systems in the earthquake stricken city of Peñaflor and later share the experience gained with other communities in Latin America (Page 8).

Good news are also arriving from our fog net projects. While the project in Morocco is now on the home run after delays, some communities in Tanzania are already benefiting from the technology (Page 36). We have also made good headway in our plans for improving the net with the simplest means possible and at low costs. Newly designed nets now wring even more water out of the fogs and will boost the technology all around the world.

Wishing you an interesting read,

Thomas Loster

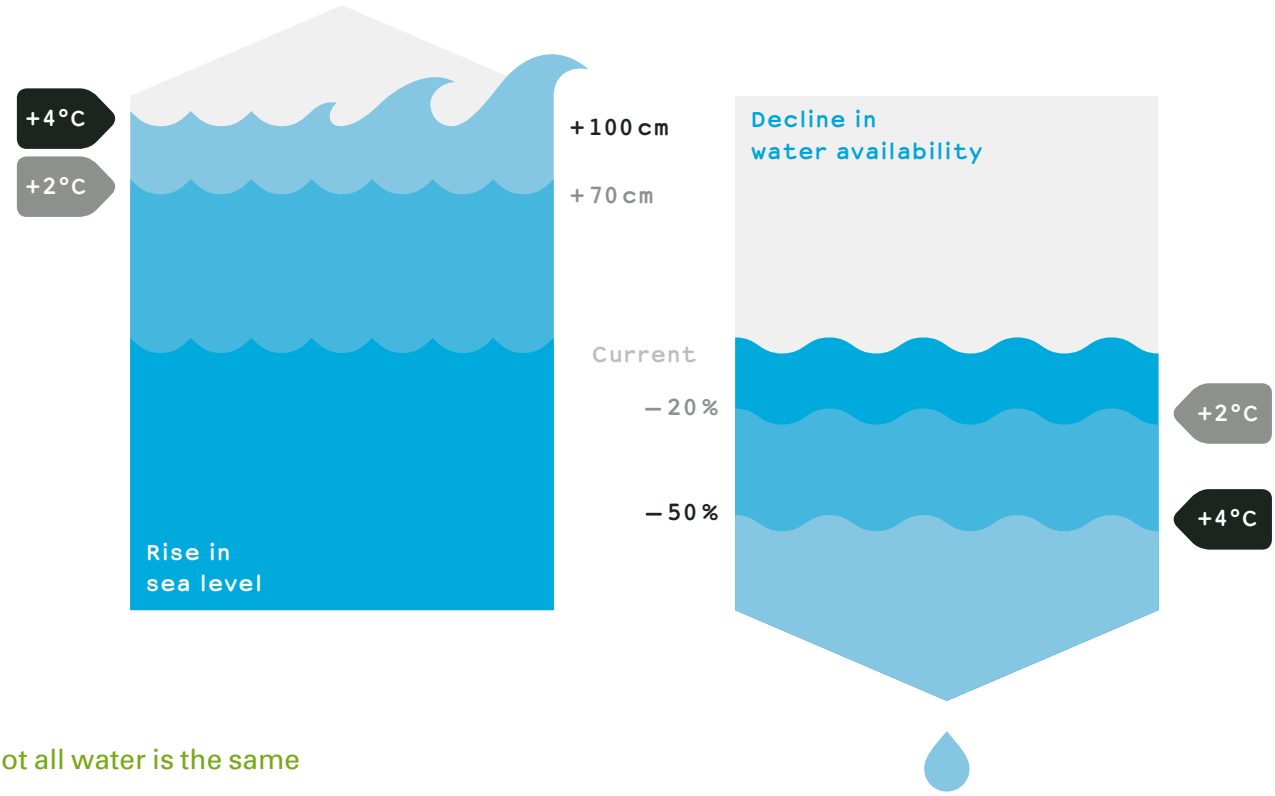
Carlos Kaiser, Director of the Chilean organisation ONG Inclusiva, won the RISK Award in 2014. He campaigns for inclusive risk management in Chile. Page 9

Herbert Hruschka, process technician and water expert, analyses the drinking water quality for our fog net projects and helps improve the fog net technology. Page 41

Claudia Binder, professor for geography at the Ludwig-Maximilian University of Munich, builds bridges between the private sector, scientific research and civil society with her seminar on transdisciplinary studies. Page 59

A young couple in Sariayakandi, Bangladesh, is forced to move their home. Erosion destroyed their land. They carry their house further inland.

Climate protection policies: what is required, what is possible?



Not all water is the same

Climate change poses hazards. If the global average temperature increases by 4°C, the sea level will climb by as much as one metre. At the same time, the availability of usable fresh water will fall by 50 %. If global warming can be limited to 2°C, the effects will be considerably less dramatic.

Source: Worldbank und PIK: Report No. 3, November 2014
"Turn Down the Heat: Confronting the New Climate Normal"

The human race is faced with a Herculean task: CO_2 emissions are today growing at a faster rate than in the three decades before. This is stimulating climate change. In the next 20 to 30 years, the entire CO_2 budget of approximately 1,000 billion metric tons (gigatons) will already have been used up. This is the amount of CO_2 that we still can release into the atmosphere if we want to limit the temperature increase to 2°C higher than it was in pre-industrial times.

Ottmar Edenhofer

Ottmar Edenhofer
is Chief Economist and Deputy Director of the Potsdam Institute
for Climate Impact Research and one of the Chairpersons of Working Group III
of the International Panel on Climate Change (IPCC). He is Professor of the
Economics of Climate Change at the Technical University of Berlin and has been
a Member of Munich Re Foundation's Board of Trustees since 2014.

To achieve the two-degree-target with the greatest probability, the annual greenhouse emissions, starting from the current levels, must be reduced by 40 % to 70 % by 2050, and must approach zero towards the end of the century. Climate and economic policies are required in equal measures for these efforts. The most important task is to demonstrate that it is possible to decouple economic growth from emissions growth in the long term. Developing countries are not therefore inevitably forced to repeat the economic history of the industrialised countries. In addition to this, the energy system must be transformed on a grand scale: a three- to four-fold increase in the proportion of low-carbon technologies is required by 2050. This not only includes renewable energies but also nuclear energy, the use of carbon capture and storage (CCS) and also of bioenergy combined with CCS (BECCS).

A choice between the various avoidance technologies only exists as long as the remaining carbon budget is big enough. However, the results of the International Panel on Climate Change (IPCC) suggest that it will be very difficult to dispense with technologies for the storage of CO_2 if the global average temperature is to increase at the very most by 2°C. However, the use of technologies such as BECCS that extract CO_2 from the atmosphere is a controversial issue. They harbour considerable risks that are also the subject of heated debate in the IPCC. The top priorities of these debates are the threats to food security and the impacts on biodiversity. Some researchers believe that these risks can be controlled by rational land use management, others have considerable reservations in this respect. The technical risks of a particular avoidance strategy increase the longer we wait to begin avoiding emissions.

Another important method of maintaining the broadest spectrum of technologies possible is to reduce energy consumption. As the reduction of end-user energy consumption is often associated with relatively low risks and even with many positive side effects, this is a useful and important complementary strategy for indispensable complete decarbonisation, especially of the electricity and transport sectors.

The longer we take to begin avoiding emissions, the higher the costs for achieving a predefined stabilisation target. If climate policies postpone measures that are already required today until 2030 and later, the avoidance costs could increase by 15 % to 40 % by the end of the century. Ambitious targets also increase the costs. Global economic growth of 1.6 % to 3 % annually will be reduced by 0.06 percentage points upon reaching the two-degree target. For a three-degree target, it would only be reduced by 0.04 percentage points.

Minimum cost avoidance strategies can only be implemented if a price is put on CO_2 emissions and the polluter is required to bear the costs. If the price rises, this is an incentive for the polluters to reduce emissions and invest in low-carbon technologies. In principle, this can be done in two ways: by means of a CO_2 tax or by an emissions trading scheme. Unfortunately, today's existing trading systems do not work satisfactorily. Giving the revenue from the CO_2 pricing to the developing countries would be one conceivable possibility. They could use the funds to improve the supply of clean water, for example. The emissions would be reduced as a result while the quality of water supplies would be improved at the same time. Climate policies would consequently contribute to resolving urgent development problems.

Climate policies have long been racing against time: the longer mankind waits to significantly reduce emissions, the greater the costs and the necessity of resorting to high-risk technologies. For this reason, it is important that we learn through structured hypotheses from past mistakes and successes. It is essential to make climate policy requirements possible in real politics.

Germany, “Schwarze Pumpe” near Spremberg: a test lignite power plant is used to find ways of avoiding carbon dioxide emissions as far as possible. 90 % of the carbon dioxide can now be captured and stored in this plant (Carbon Capture and Storage).

2014 RISK Award — Integrative risk management is important

There are deficits in disaster prevention all over the world: because too many people are not prepared, many lives are often lost as a result of disasters. The high costs of disaster impact management are added to this. Marginalised groups are particularly vulnerable in our society — they are easily overlooked.

The theme of the 2014 RISK Award was "Disaster emergency — Resilience for the most vulnerable". The title reflected the purpose of the award: we were looking for a project proposal that focuses on the people who are most vulnerable in a disaster. Depending on the region, these can be different groups of people: in some countries, religious minorities are not properly integrated into protective measures, in many places children and women are neglected. They all have no voice when it comes to making plans for disasters.

People with disabilities need tailored solutions

People with disabilities — according to the World Health Organisation they account for 15 % of the population — often find themselves at a distinct disadvantage. Their specific needs often are not considered when it comes to the design of shelters, training measures, evacuation or preparation options. An audible alarm warning of a tidal wave is useless for deaf people. And an evacuation route via a staircase confronts wheelchair users with an insurmountable hurdle. It is therefore all the more important to recognise the specific needs and integrate them into emergency plans.

77 applications from 44 countries

By the beginning of 2014 we had received 77 applications for the RISK Award from 44 countries. The topics were as diverse as the players behind the project proposals. The candidates not only included renowned organisations and small groups but also numerous individuals. They all demonstrated a wide variety of ways of integrating particularly vulnerable people into disaster management. The foundation for

the first time presented a selection of the best proposals in a brochure entitled "RISK Award: First-hand news". It can also be viewed as a PDF file on the foundation's website.

Presentation of the award

For the jury it was no easy task to choose the best candidate from the large number of applicants. However, in the end, the choice was clear. The winner was presented the prize at a conference held by our project partner, the Global Risk Forum. The International Disaster and Risk Conference (IDRC) took place from 24 to 28 August 2014 in Davos. ONG Inclusiva was able to accept the 2014 RISK Award to the applause of some 700 conference participants. With their project "Peñaflor town inclusive safe community: resilience for all", the small non-profit organisation from Peñaflor in Chile developed a concept for its own city. The town is threatened by earthquakes and other disasters, people with disabilities are supposed to be better integrated into the preparation plans in the future. The goal of ONG Inclusiva is that all residents should have equal opportunities for remaining safe (for project details, please see page 8).

Outlook

In March 2015, the United Nations World Conference on Disaster Risk Reduction will be hosted in Sendai, Japan. Several thousand participants are expected to attend. We would like to use this important conference offered by the Secretariat of the International Strategy for Risk Reduction of the United Nations (UNISDR) to present the 2015 RISK Award to the winner. By then, the jury of international experts will have selected the best proposal on the topic "Disaster risk reduction — People-centred, innovative and sustainable".

About the RISK Award

Munich Re Foundation funds the RISK Award in cooperation with the Global Risk Forum in Davos (GRF) and the UNISDR. The prize is presented at the conferences of the project partners. Munich Re Foundation provides the endorsement of €100,000.

The foundation for the first time presented a selection of the best proposals in a brochure entitled "RISK Award: First-hand news". It can also be viewed as a PDF file on the foundation's website.

www.risk-award.org

Left: A strong earthquake destroyed thousands of homes in Chile in 2010, over 500 people were killed. People with disabilities were particularly affected. They often found escape routes impassable and the rescue forces were not always prepared for their specific needs.

Right: The award ceremony for the second RISK Award was held on 24 August 2014 at the International Disaster and Risk Conference (IDRC) in Davos.

Peñaflor, Chile — Equal opportunities for everyone

Above: ONG Inclusiva fights for inclusive risk management. The organisation works together with representatives from politics and civil society. This includes the police, the fire brigade and volunteers as well as hospitals.

Chile is highly prone to earthquakes. The non-profit organisation ONG Inclusiva, winner of the RISK Award in 2014, is committed to ensuring that people with disabilities have the same rescue chances in a disaster as non-disabled people.

ONG Inclusiva was founded after the devastating earthquake and subsequent tsunami in 2010 in Chile. At that time, over 500 people lost their lives and more than 20 million inhabitants were affected. Among the injured and dead were many people with disabilities. This group of people in particular finds it difficult to follow evacuation routes or reach shelters, which are often not equipped for special needs. With its pilot project in the city of Peñaflor, ONG Inclusiva wants to remedy the situation and establish better rescue and prevention systems. In Peñaflor alone, there are more than 9,000 residents with disabilities.

An integrated approach is urgently needed

Carlos Kaiser, a former university professor and now director of ONG Inclusiva, has an even greater vision: should the inclusive approach succeed in Peñaflor, the experience gained will be shared with others. Not only with communities in Chile but all interested parties in Latin America. For this purpose he is seeking partners, building networks and pursuing a revolutionary goal: it must become completely normal to include special needs citizens into disaster prevention measures.

Kaiser himself has a severe disability. He was born without forearms and lower legs. He uses his personal situation as a metaphor: "Sometimes we are in places in which the charger for the mobile phone or the PC plug just doesn't fit into the socket. It's the same thing for me with my arms and legs: I have to fit into a disaster prevention system that theoretically works but simply doesn't match my 'plugs'. We must change this." Carlos wants to achieve the requisite adaptations in several ways:

Building measures

When disaster strikes, some specific "hot spots" are particularly important. These can be evacuation routes or hospitals. Kaiser plans to make ten selected hot spots in Peñaflor barrier-free. Stairs are to be converted into ramps and door sizes designed so that wheelchairs can go through them easily. 150 houses in which people with disabilities live will also be freed of obstacles.

Training courses

Kaiser also sees cultural barriers. "If buildings are not designed or built to meet requirements, this is a product of the culture, of the way we see the world." Instead of accepting cultural practices without further reflection, Kaiser wants to encourage people to develop their own ideas. Mediators for integrated risk management should introduce the ONG Inclusiva ideas into society. A total of 1,200 volunteers in Peñaflor — representatives from different sectors of society, from the regional governments and from the police and fire departments — will be trained in special courses. It is also planned for some mediators to join city council bodies and help shape policy decisions.

Information

Kaiser documents the results of the adjustment process in Peñaflor meticulously so that the country can learn from the successes and failures. A risk map of the city paying

special attention to pitfalls for people with disabilities is planned. Guidelines for holistic risk management are to be developed and summarised in a guidebook. The ultimate goal is to publish this book in English and Spanish. UNISDR has already signalled interest and announced plans to distribute the book in Latin America.

Outlook

Munich Re Foundation looks forward to working with ONG Inclusiva. Our first project for disaster reduction in Latin America has the potential of proving that inclusive risk management works. The 2014 RISK Award helps to increase the safety of vulnerable people.

For further information on this issue:

www.onginclusiva.com/onginclusiva

Inclusive risk management – Four questions put to Carlos Kaiser

ONG Inclusiva from Peñaflor won the 2014 RISK Award. The winning project helps people with disabilities to prepare better for natural disasters. During the IDRC in Davos we spoke to Carlos Kaiser about his plans.

Carlos, congratulations! What does the RISK Award mean for you?

A lot. The award allows us to achieve goals. Many NGOs in Chile have problems with funding. However, the RISK Award is much more than just money. It proves that we are going in the right direction and it generates visibility.

You always speak about the importance of networks in your work. Can you explain what you mean?

If we worked alone in isolation, we could never succeed. The town council of Peñaflor is an important partner. We also network with other organisations in Chile. Not to mention international partners, such as the Global Network. The Ministry for Health also plays a key role. It has the power to disseminate the results of our pilot project all around the country.

What are your next objectives?

First of all, we will attend to the practical work. Then we will try to get science involved. The knowledge that we generate must be verified. We will then discuss with our Health Minister how to put this knowledge to the best use. Last but not least, we want to offer international training courses in Latin America. In this way, we can reach even more people.

Where do you see your project three years from now?

In three years we will be able to provide hard data. We will also prove the qualitative benefits of integrating people with disabilities into risk management. We are striving to make the knowledge about risks more widely known so that not only insiders know how to protect themselves. In three years' time, we will not just be reading words: we will be seeing successful projects. There will be equal opportunities for everyone.

Carlos Kaiser,

a former university professor, is today Director of ONG Inclusiva, a non-profit organisation in Chile.

Gibika — Safeguarding livelihoods and protecting life

Our Gibika project is aimed at strengthening the livelihoods of communities in Bangladesh. In its second year, a field study and the selection of project sites were at the centre of attention. The aim is to enable the local people to rely on their own strength in responding to changes in their living conditions.

Resilience describes the ability of people or communities to cope with shocks such as natural disasters or system changes. Ideally, the people concerned succeed in keeping damage to a minimum, adapt quickly to the new situation and thus emerge reinforced from the crisis.

Resilience is also the main focus of our Gibika project in Bangladesh. The name comes from Bengali and means livelihood. We have made it our mission to strengthen Gibika. We want to give people in threatened communities opportunities to take action so that they are independently able, with their own ideas and a secure income, to cope with problems and prepare for the next emergency. Poor communities in particular find this challenging because there are hardly any jobs and external shocks can severely damage the already fragile infrastructure.

In Bangladesh, about half of the workforce is employed in the agricultural sector. Droughts, floods and soil salination can cause immense damage and often hit the people and their communities twice over. If the yield sinks it is not just the nutrition of the families that is at risk. As surpluses that can be sold in good years are no longer available, an important source of income is lost. As a result, young people often move to the cities to look for other income opportunities. They are then missing during the next agricultural season, and the community gradually becomes more and more vulnerable.

Bhokul lives in the community of Dalbanga in the southwest of Bangladesh. The villagers here have always been threatened by natural disasters. Cyclone Sidr in 2007 was particularly grievous. This tropical cyclone cost Bhokul's brother his life.

Research areas in Bangladesh

Within the framework of the Gibika project, a wide range of diverse hazards such as storms, droughts, floods and erosion are to be examined. The map shows the research areas dispersed across the country:

1. Gabtola, Sarankhola Upazila, Bagerhat District
2. Mazer Char, Mathbaria Upazila, Pirozpur District
3. Dalbanga South, Barguna Upazila, Barguna District
4. Singpur, Nikli Upazila, Kishoreganj District
5. Babupur, Shapahar Upazila, Naugaon District
6. Zamalpur, Shapahar Upazila, Naugaon District
7. Bhola slum, Dhaka City

Source: Munich Re Foundation, own blueprint 2014

Understanding income risks in different regions

To better understand the people's means of livelihood, our partners created a field study in May and June 2014. The research team spent several days in different regions. In addition to villages such as Gabtola, Mazer Char, Singpur, Babupur, Zamalpur and Dalbanga South, the Bhola slum in the capital Dhaka was also one of the study areas (see map). The researchers wanted to determine the exact circumstances and backgrounds, how the income situation of the people changes and find out what role natural causes and other shocks play. Another concern was to encourage communities to take the initiative in helping themselves more often. The Gibika project partners want to build on the proposals from the communities and make use of local and traditional knowledge.

The residents described in detail the dangers they perceive to be threatening. They reported how often they need to cope with strongly fluctuating incomes and how much this affects them and their families. The research team also learned about the different strategies with which people react to the changing situation.

How strongly the forces of nature determine life was described by a resident of the Bhola slums: "Our houses were destroyed repeatedly by severe flooding. We noticed that it would be better to build our houses on higher ground and raised it by piling up earth. This helped us during the next floods." However, the situation has now become more dangerous again. Floods not only occur more frequently today, they are also larger in dimension. The protective measures are no longer adequate. In addition to this, heat waves, general overcrowding and poor sanitation facilities make life even harder.

Disaster prevention

In their study, the researchers also investigated the following questions: How do livelihoods change in the course of the seasons? When and why do the residents choose to relocate temporarily or permanently? What role do environmental changes play? How does food shortage influence people's choices? In addition to this, measures already used to strengthen resilience were listed. They ranged from technical solutions such as the construction of dams and shelters to long-term projects such as the reinforcement of local structures and training measures. The analysis rewarded the team of researchers with important insights. This allows redundant measures to be avoided while the wishes of the population are incorporated into solutions. This creates trust from the very beginning and has a favourable effect on cooperation at local level.

Decision for two sites

The field studies showed that almost all communities require urgent assistance. Either in coping with the consequences of extreme river erosion and the loss of habitable land or, as in the case of Babupur and Zamalpur far to the northwest, to bring watering and drought problems under control. The existing irrigation systems are overtaxed here. In the Bhola slum in the capital city of Dhaka, there are already numerous development programmes. However, they do not go far enough, so that further work is needed.

The Gibika project team selected Dalbanga to be the first place in which measures to strengthen resilience will be implemented. A second project will, among other things, examine an urban location, the Bhola slum in Dhaka.

In the northwest of Bangladesh strong droughts occur repeatedly. Fertile land dries out and forces the farmers to adapt accordingly.

Above: Dozens of major rivers flow across the country. Sediments form islands which are densely populated. However, heavy rains and rising river levels then often lead to erosion – the living space gained disappears.

Below: Just a few years ago, this elementary school still stood far from the shore. Today, every new flood is a threat. In the long term, the school cannot be kept up because of the strong erosion.

Definition of resilience

Resilience is the ability of individuals, groups and institutions, to deal with shocks or chronic stress due to fragile situations, crises, violent conflicts or natural disasters, to recover quickly and adapt — without endangering medium- and long-term life perspectives. Resilient players and societies are characterised by their capacity for absorption, adaptation and transformation.

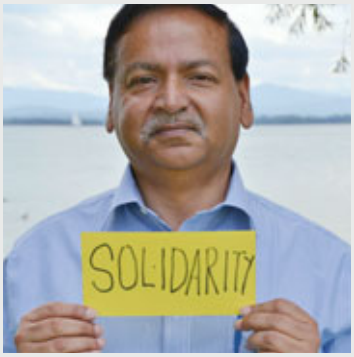
- Dalbanga South: This community in the south of Bangladesh is regularly exposed to floods and strong cyclones. Here disaster preparedness elements such as early warning systems could be part of the solution.

- Bhola slum: The people have already developed a certain resilience and can, to a certain degree, react to shocks. However, many problems such as flooding, poor sanitation and stress due to obvious overpopulation remain unresolved. We are first investigating whether there are any opportunities for the transfer of risk. The foundations for this are in place, as the municipality already knows about saving mechanisms and emergency funds. Because of the branched and complex clan structures, we also need to find more local partners so that measures can be implemented successfully.

Outlook

An urban and a rural location permit us to consider a wide range of risks and to test and improve various coping strategies. In the coming years, we and our partners, the Institute for Environment and Human Security at the United Nations University (UNU-EHS) and the Research Institute for Climate Change and Development at the International University of Bangladesh (ICCCAD), together want to implement specific measures to increase resilience. A key concern is to involve the local people and take their ideas and development prospects into consideration.

2014 Resilience Academy — Livelihoods in transition



The Resilience Academy was held in Frauenwörth Abbey on an island in Lake Chiemsee. Almost all the participants who had attended the inaugural event in Dhaka, Bangladesh, in 2013 had made their way to Bavaria. That is a good sign for the organisers ICCCAD, UNU-EHS and Munich Re Foundation. It bears witness to a strong network.

The central questions addressed by the annually hosted academy were: How must the political framework be engineered to strengthen people's resilience and adaptability to shocks? What contribution can science make in this respect? To delve into these questions, we invite young researchers, politicians and people working in different projects from all over the world. The Resilience Academy offers a forum for dialogue and interdisciplinary work and helps build up new networks.

Focussing on developing countries

Resilience and adaptability are particularly needed by remote communities that are exposed to numerous natural hazards. People must find solutions to the challenges posed to them by environmental and climate change as well as demographic shifts. Often the problems develop at such a pace that the traditional ways of livelihoods cannot keep up with them. Poor countries like Bangladesh are hit especially hard by this.

The boundary conditions here are changing at increasingly faster rates: rainy seasons either fail or they begin late, at other times rainfall is all the heavier. Droughts occur with greater frequency and the rising sea levels drive saltwater onto agricultural land. As if this was not enough, the country is also regularly hit by strong cyclones. In addition to this, social upheavals also complicate the situation for many people. This upheaval is triggered by unrest or strikes, while the population pressure and poverty also lead to tension.

These many risks force inhabitants to adjust their livelihoods to the new circumstances. They must, for example, find a replacement for the traditional farming methods, which are often no longer worth the work invested. The progressive erosion caused by rivers also forces people in many areas of the Delta State to flee. Only if they have the necessary resilience and adaptability will they be able to master life under the changed conditions.

So resilience is of immense importance for the sustainable development of individuals, communities and entire regions.

Integral approach is successful

"Only when one views resilience and livelihoods together can one develop successful strategies," says David Wrathall, Project Manager from UNU-EHS and leading organiser of the Resilience Academy. "Many processes are today considered in an isolated fashion: fighting poverty, climate change, disaster prevention. That is not good. An integrated approach, like the one practised at the Resilience Academy, is better."

Now is a good time to promote this concept. In 2015, important international processes and agreements will be renegotiated: the climate summit in Paris will conclude a new climate agreement at the end of 2015, and the Sustainable Development Goals of the United Nations will provide a new concept for this area. The Hyogo Framework for Action that prescribes the international strategy for disaster mitigation will be resolved anew in March 2015.

The Resilience Academy will assert its influence in all these processes and agreements. Many of the 35 academy participants hold positions in institutions, bodies and organisations at key leverage points: they work for or with the IPCC, the United Nations Environment Programme (UNEP), the World Bank, the Wilson Center in Washington or at GIZ. So the research that we promote with the academies is politically relevant.

The participants of the academy highlight aspects of resilience they find important. All aspects are collectively significant if societies are to be strengthened.

From left to right:

Saleem, Bangladesh: "Solidarity"

Zinta, Latvia: "Diversity"

Karen, Australia, and Helen, England: "Agents of change"

Nishara, Sri Lanka: "Social transformation"

Kees, The Netherlands: "Coping"

Sarah, Hawaii: "Hope"

Robin Bronen, a human rights lawyer from Alaska and participant in the academies agrees: “It is high time to take a new, holistic approach. That is the only way that we can guarantee that all people get what they have been entitled to for many years now already under the globally acknowledged human rights: health, an appropriate standard of living and self-determination.”

Munich Re Foundation organises the Resilience Academies in cooperation with the International Centre for Climate Change and Development (ICCCAD) in Bangladesh and the United Nation’s Institute for Environment and Human Security (UNU-EHS) in Bonn. As of 2013, they have taken the form of a double academy held alternately in Bangladesh and Germany. In each case, two consecutive academies form a unity because they consist of the same group of participants. This enables a more intense South-South-North dialogue and opens up opportunities for long-term partnerships. In 2015/16, we will invite a new group of participants.

Resilience Academy publications

One of the goals of the double academies is to draft scientific articles and publish them in recognised specialist periodicals. We made a lot of progress towards that goal on the Fraueninsel. Overall we produced ten essays to be published in journals. The “Livelihood resilience in the face of climate change” article has already been accepted by the acknowledged Nature Climate Change journal and will be published soon.

For further information on this issue:

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

From left to right:

Andrea, Italy:
“Education”

Robin, Alaska:
“Justice”

Sonja, Sweden:
“Bounce back”

Resilience and human rights – Four questions put to Tom Tanner

Tom Tanner

is Head of the Adaptation and Resilience Group of the Overseas Development Institute in London. He took part in the Resilience Academies in 2013 and 2014.

The concept of resilience is increasingly better understood. It even is a new buzzword. But still many people don't understand the concept. How would you shortly define resilience?
I understand resilience in terms of people's ability to improve their livelihood opportunities and well-being despite the difficult circumstances they might face, whether economic crises, ill-health, disaster events, violence or political unrest. Resilience is about preparing for, recovering from and learning from these challenges.

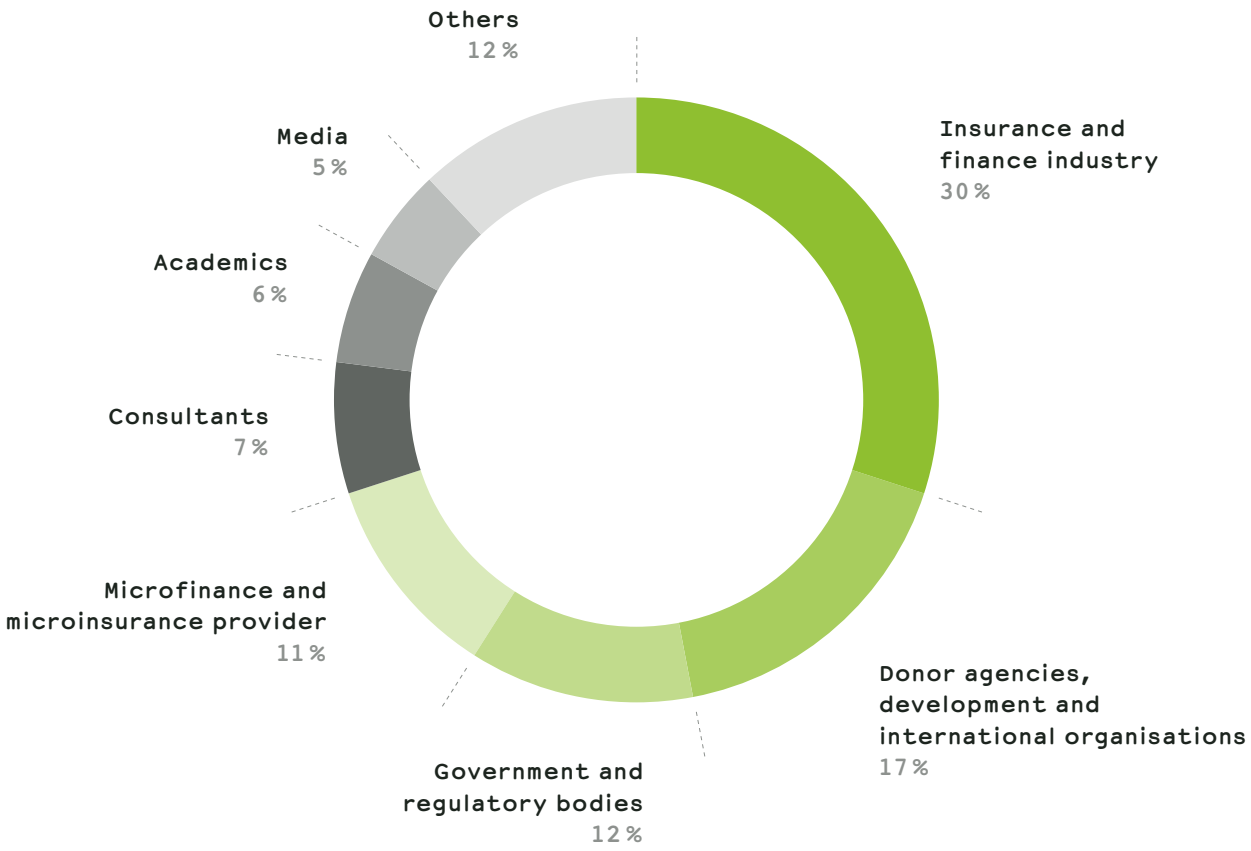
Participants from 20 countries from all parts of the world came together for the Resilience Academy. Did you reach a consensus on how to build resilience in communities?
When have 30 or more academics ever agreed on anything? Seriously though, despite us all coming from different disciplines, cultures, ideologies and life experiences, over the two meetings we developed a common view of resilience building that stresses the importance of social factors and human agency, human rights as a framework for cases to, and understanding resilience in the context of wider societal changes such as migration or industrialisation.

One goal of the Resilience Academy 2014 was to produce scientific papers as well as policy-relevant papers. Do you think that both goals were achieved?
With the Resilience Academy intake of 2013, these goals are completely intertwined as we are all working on policy-relevant scientific research. The working papers cover a wide range of fascinating topics. I'm delighted that we got our perspective into Nature Climate Change, while the UNU Policy Briefing looks great.

The Resilience Academy is a bi-annual event. The same cohort of participants met twice in 12 months. Do you think that this concept is a success?
Repeat meetings encouraged much greater collaboration in the intervening period and beyond than if it had just been a one off. It has created trust, shared endeavor and friendship – the cement that binds international scientific collaboration tighter than anything else. It also meant we could sharpen our guitar repertoires in readiness for the second meeting!

Meas Sophea sits on the Krang Lahiong town council in Cambodia. She works for a microfinance group that provides rice farmers with insurance.

A ten year retrospective on microinsurance



Type of representatives 2012—2014

With around 30 %, the insurance industry is the largest group of participants – a clear sign of the importance of the topic. Donor agencies and regulators are also well represented.

Source: Munich Re Foundation ⁄ Microinsurance Network

In October 2005, the Munich Re Foundation organised a landmark event when it brought 90 experts to Schloss Hohenkammer to discuss the provision of insurance for low-income policyholders. This became the first of ten (and counting) annual international conferences that have rotated around the world each year, from Latin America to Africa to Asia.

Craig Churchill

Craig Churchill
is Head of the Impact Insurance Facility of the International Labour Organisation (ILO) in Geneva and Chairman of the Microinsurance Network. For ten years he has been assisting the conference as a microinsurance expert and co-organiser.

As Chair of the Microinsurance Network, it has been my honour to collaborate with the foundation in organising the conference agenda and selecting speakers. Together, the foundation and the network have created an anchor event on the calendar around which many other agencies organise complimentary activities, including policy forums for insurance supervisors, academic seminars, and an innovation forum for practitioners.

Much has changed in the microinsurance world in the past 10 years. At the first conference, we focused on the basics, such as how to collect premiums from people with limited cash flows, and how to sell insurance to people who had never had it before. Most of the experiences at that time were from NGOs, community mutuals, and microfinance institutions. Insurance companies were sometimes involved, but usually as passive partners. Sometimes they adapted their products or processes, but often not going far enough to make them relevant for this target market.

I do not think anyone who attended that first event expected that we would still be having conferences in 2014. We certainly could not have imagined that we would be talking about distributing insurance through mobile phones, specialised insurance regulations, the role of associations to support market development, or using weather stations and satellites to determine if claims should be paid. Indeed, microinsurance has come a long way in the past decade and has grown sharply.

Today, in many countries, the insurance industry is no longer just an observer, but rather is a driver in the microinsurance revolution as it introduces new technologies, collaborates with alternative distribution channels, and reformulates processes to be relevant for the majority of the population in emerging markets. Not only is microinsurance an opportunity for insurers to access and establish new markets, but the innovations required to serve these markets can have a positive impact on their core business as well.

The annual International Microinsurance Conference has made a major contribution to this rapid evolution. From conversations that I have had with insurers, regulators and other stakeholders across the globe, they often mention conference participation as an important turning point for them, where they had an "aha" moment that influenced their thinking and their approach.

The fact that many people return year after year is a formidable testament to the power of these events. Even though the conference content has moved on to many new topics and issues, we still keep coming back to the fundamentals because we keep learning how to make the basics work better.

One of the issues that remains true today as it did in 2005 is the duality of microinsurance, combining the social and commercial dimensions. This duality remains very much a tension today, most commonly articulated as the balance between client value and viability. But fortunately we do not have to have a trade-off between these dimensions; a number of examples are emerging that represent win-win scenarios, where providers have made modifications to improve viability or value, and had a correspondingly positive impact on the other dimension as well.

This duality is also manifested in public-private partnerships (PPPs) between governments and the insurance industry — for example on health, agriculture and disaster risks. Through PPPs the insurers can serve as an ally for the government to achieve public policy objectives, while at the same time increasing the flow of premiums and expanding market share.

The development impact of insurance is not just seen at the household level, but also within the economy as a whole. By managing and diversifying risks, insurance enables entrepreneurs to make higher risk, and higher return investments, thus stimulating growth. We see this, for example, coming from studies on agriculture insurance, where small farmers who are insured are willing to make more investments, in fertiliser or cultivate larger plots, which result in higher incomes, and therefore contribute to breaking the vicious cycle of poverty.

Insurance has the power to change people's lives, to protect their health and their assets, and to give them peace of mind to make investments for the future. Through their work, the Munich Re Foundation and the Microinsurance Network are making valuable contributions to enhance the availability of quality insurance for the working poor, which also benefits their communities and their countries.

Microinsurance protects poor people in employment against risks. Solutions for small farmers are offered in Africa and Asia. The picture shows a rice farmer in Cambodia.

10th International Microinsurance Conference — New Landscape Study inspires confidence

In terms of total population, microinsurance reaches more people in Latin America and the Caribbean than in Africa or Asia. However, as the Microinsurance Conference 2014 in Mexico City demonstrated, the potential is far from exhausted.

Above: Many of the 400 participants were from Latin America. Amongst them representatives of the Brazilian regulation authority CNSeg (on the left).

Microinsurances are an important contribution to social security and of central importance to the poor in their endeavours to secure incomes, education and health. In Latin America and the Caribbean, this instrument of poverty reduction is experiencing increasing popularity. Between 2011 and 2013, insurance penetration in this region increased from 7.6% to 7.9%. As the "The Landscape of Microinsurance in Latin America and the Caribbean 2014" study shows, microinsurance, with an annual premium income of more than US$ 800 million in the region, now offers providers an economically viable perspective. Munich Re Foundation and the Microinsurance Network published the study at the 10th International Microinsurance Conference, which took place in November 2014 in Mexico City.

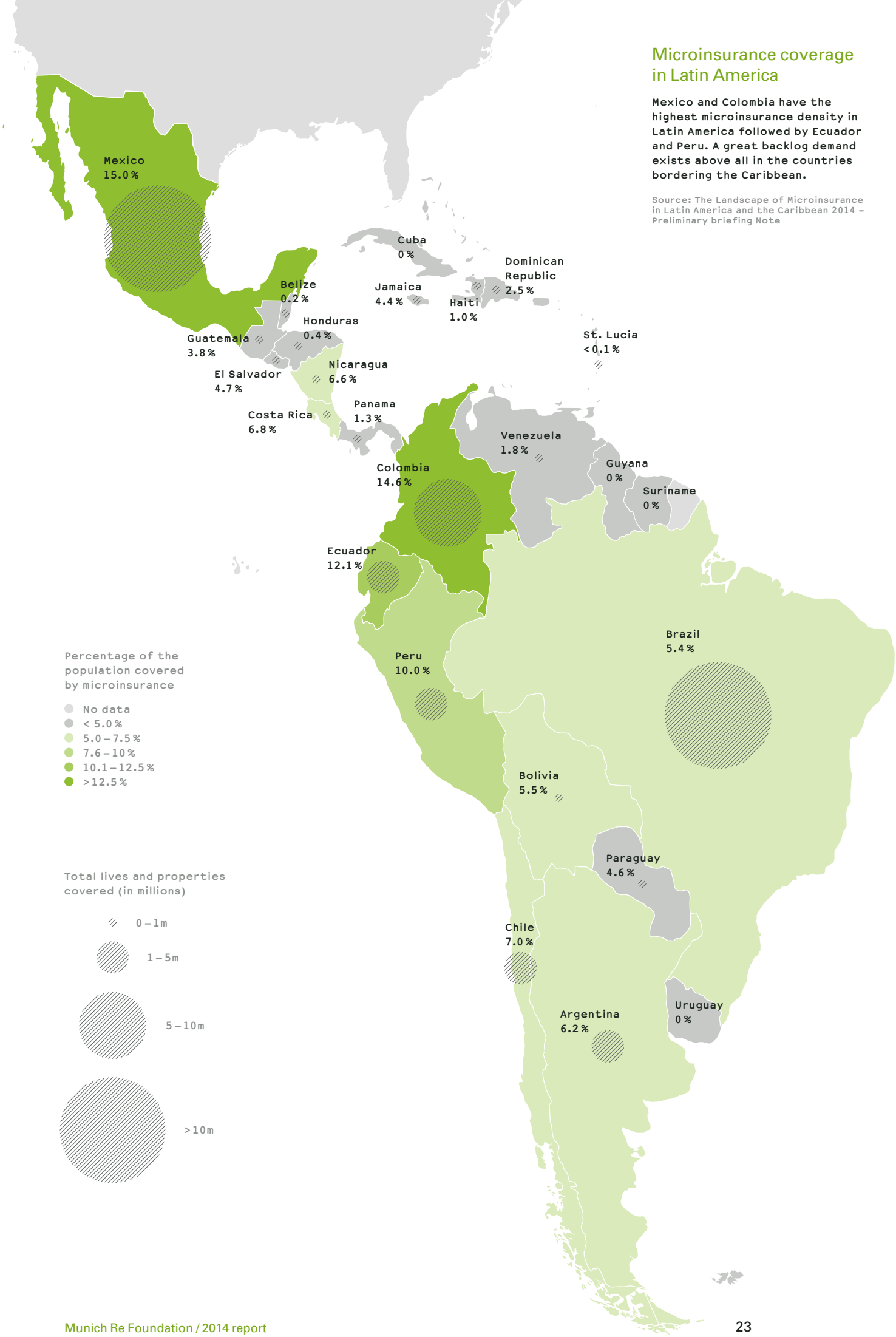
Mexico leading in Latin America

Of the 112 million inhabitants of Mexico, approximately two thirds are considered to be potential microinsurance clients. At the moment, families still mainly rely on savings to cope with unforeseen problems such as illness or accidents, explained Recaredo Arias, CEO of the Mexican insurance association Asociación Mexicana de Instituciones de Seguros (AMIS). But this is changing. According to the Landscape Study, 18.3 million Mexicans, or 15% of the population, also use microinsurance. This puts the country at the forefront of Latin America and the Caribbean.
The authors of the study estimate the total potential in the region at 250 to 300 million people — five to six times the number of

Microinsurance coverage in Latin America

Mexico and Colombia have the highest microinsurance density in Latin America followed by Ecuador and Peru. A great backlog demand exists above all in the countries bordering the Caribbean.

Source: The Landscape of Microinsurance in Latin America and the Caribbean 2014 – Preliminary briefing Note



around 50 million insurance holders to date. In relation to the total population, the outreach is today already much stronger than in Africa and Asia.

However, growth slowed down between 2011 and 2013 to an average of 2% per year. "We have found that this slower growth is a more 'prudent' growth," explained Michael McCord, President of the Microinsurance Centre, who presented the study at the conference. Among other things, companies are planning market development with greater care and abandoning unprofitable products. The companies explained that products specifically designed for the low-income market are no longer being offered due to a strategic shift in focus towards the mass market. Eight more new providers are now simultaneously active in several countries. This includes Brazil's biggest insurer Bradesco, which entered into the microinsurance business in Mexico in 2013.

More efficient distribution channels required

On the sales side, structural changes are unmistakably recognisable, as shown by the Landscape Study. Whereas in past years, microfinance institutions in particular played an important role, alternative sales channels such as power and water utility companies are now gaining significant market shares. As regards the efficiency of distribution channels, Latin America and the Caribbean can learn from other regions, such as Africa, where approximately 70 microinsurance programmes use mobile phones for sales. In Latin America and the Caribbean, however, there are only five such programmes.

In addition to this, some market segments still lie fallow: according to Manuel Aguilera, President of the Mexican financial regulator CNSF, emigrants transferred nearly US$ 2 billion to their home countries to help their relatives financially in September 2014. Migrants worldwide transfer hundreds of billions of US$. There are next to no approaches that also mitigate the risks of those who remain behind by means of insurance. In many countries, such cross-border insurances are not even permitted — a good example of how regulation adaptation could promote the market.

One important result of the study concerned the profitability of microinsurances. Of the companies surveyed, around half disclosed their figures.

The opening ceremony of the 10th International Microinsurance Conference. From left to right: Thomas Loster, Chairman of Munich Re Foundation; Recaredo Arias, CEO of AMIS; Marco Antonio Rossi, CEO of Bradesco and President of CNSeg and FIDES; Manuel Aguilera, Head of the Insurance and Surety National Commission (CNSF) of Mexico.

Above: Participants from about 50 countries bear witness to the importance of the conference.

Below: Recardo Arias, Head of the Mexican insurance association AMIS answers questions at the press conference. Mexico is one of the booming microinsurance markets.

For further information on this issue:

www.microinsurance conference.org

75 % of the programmes reported a loss ratio of less than 40 %, the average was around 25 %. Sales and administrative expenses ranged widely from 15 % to 55 %. A value of 24 % was given for the average commission, although some programmes stood out conspicuously with commission rates of up to 60 %. Profitable sales of microinsurance are difficult under such conditions. At the same time, commissions of such amounts also demonstrate the market power of specific distribution channels such as utility companies.

The annual Microinsurance Conferences have contributed significantly to the development of the world market by providing stimuli for new ideas and concepts. Despite all the progress made, the challenges remain daunting. With the 11th International Microinsurance Conference taking place in Morocco in November 2015, Munich Re Foundation and the Microinsurance Network are again offering a platform for the exchange of knowledge and experience.

Background information on the Microinsurance Conference in Mexico

The 10th International Microinsurance Conference took place from 11 to 13 November 2014 in Mexico City. It was the third such congress to take place in Latin America. The meeting with 400 participants from 54 countries was organised by Munich Re Foundation, the Microinsurance Network and the Mexican insurance association Asociación Mexicana de Instituciones de Seguros (AMIS). The German Federal Ministry for Economic Cooperation and Development (BMZ), the International Labour Organisation (ILO), the Inter-American Association of Insurance Companies (FIDES), Bradesco, the Inter-American Development Bank and the Center for the Economic Analysis of Risk (CEAR) of Georgia State University participated as sponsors.

Microinsurance Landscape Study in Asia and Oceania: Learning from Typhoon Haiyan

India and the Philippines are the world's powerhouses in microinsurance. But what is the situation in the other Asian countries? A new Landscape Study provides answers.

The study conducted by the organisation Microsave, was set up in cooperation with Munich Re Foundation and the Regulatory Framework Promotion of Pro-poor Insurance Markets initiative of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ RFPI).The final version was presented in July 2014 at the "Microinsurance Learning Sessions Asia and Oceania" in Manila. The figures are impressive: more than 170 million people in Asia are covered by microinsurance policies. If the large state systems, especially in the agricultural sector in China and India are added, the figure amounts to approximately 1.7 billion people. This is significantly higher than in Latin America or Africa, for example. In terms of percentages, however, the microinsurance landscape looks a little different: in this respect, Latin America, with a share of 7.6% policy holders, and Africa, with 4.4%, outrun Asia's 4.3%.

The Philippines, where about one in five residents has a corresponding coverage, stand out clearly from the rest. However, the country was put to a severe test in November 2013. Super typhoon Haiyan left more than 6,000 dead and severe damage behind. 16 million people were affected in the Philippines alone, and millions of homes and businesses were destroyed.

Regulation must adapt to the realities

Three important conclusions on the effects of Haiyan on microinsurances in the Philippines can be drawn from the study results:

- After such an event, people are struggling to survive and are not able to take care of their insurance. The companies must therefore act on their own initiative to locate and contact the policy holders.
- The requirements for the processing of damage reports and payments cannot be met under such extreme event conditions. The requisite documents have often been destroyed, death certificates cannot be issued before missing people have not been unequivocally declared dead.
- The number of reported losses was lower than had been expected by the experts, given the insurance penetration in the country. This suggests that microinsurance policies were not widely held in the area concerned.

More than 130 experts participated in that event. They focussed on lessons learned from the Landscape Study and from typhoon Haiyan.

For further information on this issue:

www.microinsurance landscape.org

www.inclusive insuranceasia.com

126,300
claims submitted (microinsurance products)

Only 4.4 % of the cases were rejected

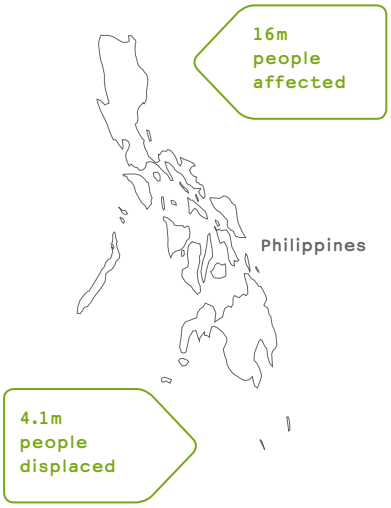
Total sum of insurance claims paid: €10 million

111,500
claims already paid

6,300 deaths of which 3.7 % were covered by microinsurance

Average total sum of paid calamity claims: €80

98 %
of the cases were calamity claims



Microinsurance and Haiyan

Typhoon Haiyan hit the Philippines very severely: 16 million people were affected, 4 million lost their homes, more than 6,000 died and many are still missing. The high number of 126,000 people with microinsurance is positive. However, it also demonstrates the as yet unused potential.

Source: Munich Re Foundation 2015; data basis: GIZ–RFPI and Microinsurance Network 2014

Regulators and insurers have drawn joint consequences from the experience. Central offices were established to facilitate damage reports. Payments to those affected were made prior to final damage determination. In addition to this, payment periods were extended and the requirements for the documentation of damage were eased. Damage may also be estimated on the basis of satellite pictures. To be better prepared for future disasters, microinsurance must reach even more people and at the same time be embedded in large-scale civil protection, disaster management and recovery strategies.

About the event

The "Microinsurance Learning Sessions Asia and Oceania — Learning from the Landscape" were jointly organised by GIZ RFPI Asia, the Microinsurance Network and Munich Re Foundation. They brought more than 130 microfinance and microinsurance experts and consultants together.

Microinsurance in Asia

The new study "The Landscape of Microinsurance in Asia and Oceania" fills in blank spots on the World Map of Microinsurance. It sees itself as a continuation and extension of the first Landscape Study from 2006 and its follow-up studies for Africa, Latin America and the Caribbean. According to the study, the number of microinsured clients in the 31 Asian countries considered increased between 2010 and 2012 by 30 %, the premium income even rose by 47 %. India is the leader in absolute terms, with more than 110 million microinsurance policies. Penetration at 9 % is lower however than in the Philippines at about 20 %, or in Thailand at about 14 %. The main product on the continent is life insurance, but the health and agricultural insurance segments are catching up. Indonesia, Nepal, Mongolia, Thailand and Vietnam have been mentioned in the study as promising target countries in which the GIZ RFPI and the regulatory authorities together wish to promote microinsurance more strongly.

Insights – Microinsurance in Tanzania Israel Kamuzora

Israel Kamuzora

is Insurance Commissioner of the regulatory authority of Tanzania. He contributed decisively to the success of the Learning Sessions.

Importance for a sustainable economic development

Tanzania's economy depends on agriculture which employs about 80 % of our workforce. The majority of our people fall under the informal sector bracket of the economy and lack a steady flow of income. The mainstream commercial and social insurance schemes therefore usually pass them by. Microinsurance can fill this void. In the past five years we have seen innovations in microinsurance products and their distribution channels. We now also have a regulatory framework for the microinsurance industry in Tanzania, including a three-year national strategy specifying an action programme with achievable milestones.

Private sector's interest

The main obstacle for private sector players entering the microinsurance market has been the lack of appropriate distribution channels. With the introduction of mobile insurance services, insurance companies in Tanzania can sell a product to a thousand customers a week by mobile phone. With increased leverage on Information and Communication Technology (ICT), more insurers are now poised for an easy entry into the microinsurance market.

Obstacles and options for action

Tanzania's insurance market faces the challenges of a low awareness of insurance, low capitalisation, poverty and a lack of insurance professionals, to mention but a few. To address these obstacles, the industry has embarked on a number of strategies such as the formulation of a national policy on insurance. Secondly, the market is now scaling up its minimum regulatory capital levels while embracing a risk-based approach. Thirdly, our national university has introduced a degree course in Actuarial Science as the first step in training actuaries how to price and reserve risks correctly. We believe these efforts will bear fruits in the near future and therefore expect our market penetration ratio to triple to 3 % by 2018.

Role of Munich Re Foundation

Munich Re Foundation is our key development partner. We have benefited greatly from your systematic approach in building a robust microinsurance industry in Tanzania. We have been one of the key beneficiaries of your training programmes and educational material. We have also been integrated into the Microinsurance Network where we now work with such organisations as GIZ, Cenfri and ILO to develop a sustainable microinsurance industry in Tanzania. We look forward to your continued support in this direction.

Microinsurance Learning Sessions Africa — Steps in the right direction

The Learning Sessions are intended to complement the annual International Microinsurance Conference. They provide a platform for discussing special developments in a region or a country. No less than two Learning Sessions took place in Africa in 2014.

The Conférence Interafricaine des Marchés d'Assurances (CIMA), responsible for insurance supervision in 14 West African States, issued binding regulations for microinsurance in 2012. Of the almost 140 million people living in the CIMA States, less than two million have such a policy, which adds up to one of the lowest insurance penetration rates in the world. Progress is urgently needed.

A stable insurance market strengthens development

Learning Sessions were held from 8 to 10 September 2014 in Douala, the economic heart of Cameroon. They offered insurance experts a forum to discuss opportunities and challenges in insurance for the lower income groups. "A stable insurance market plays an important role in sustainable development," said Jean-Claude Ngbwa, Secretary General of CIMA, outlining the importance of the conference. The CIMA countries with substantial microinsurance potential include Burkina Faso, Benin, Cameroon, Senegal, Mali and Togo.

Sales over mobile telephones

Many of the questions in Douala revolved around the subject of how to attract a sufficient number of customers to make the products more affordable in general. Community-based organisations, mutual insurance associations and other member-based organisations still play a key role in the distribution. However, the mobile phone is increasingly developing into a promising distribution channel that is at present primarily used for life and accident insurance.

Tanzania shows the way

The East African State of Tanzania shows how a suitable microinsurance strategy can significantly accelerate development. It has proven possible to broaden the range of suitable insurance solutions on offer in this country over the past two years. The result: with an insurance penetration of approximately 7 %, Tanzania is one of the leading countries in Africa in this respect. To take full advantage of further potential, the Tanzanian Insurance Regulatory Authority (TIRA)

Interest in the Learning Sessions is usually immense as specific challenges are addressed in each of the regions. In Cameroon, 350 professionals attended the event.

For further information on this issue:

www.munichre-foundation.org/home/Microinsurance/Learning_Sessions

www.microinsurance-cima.org/en

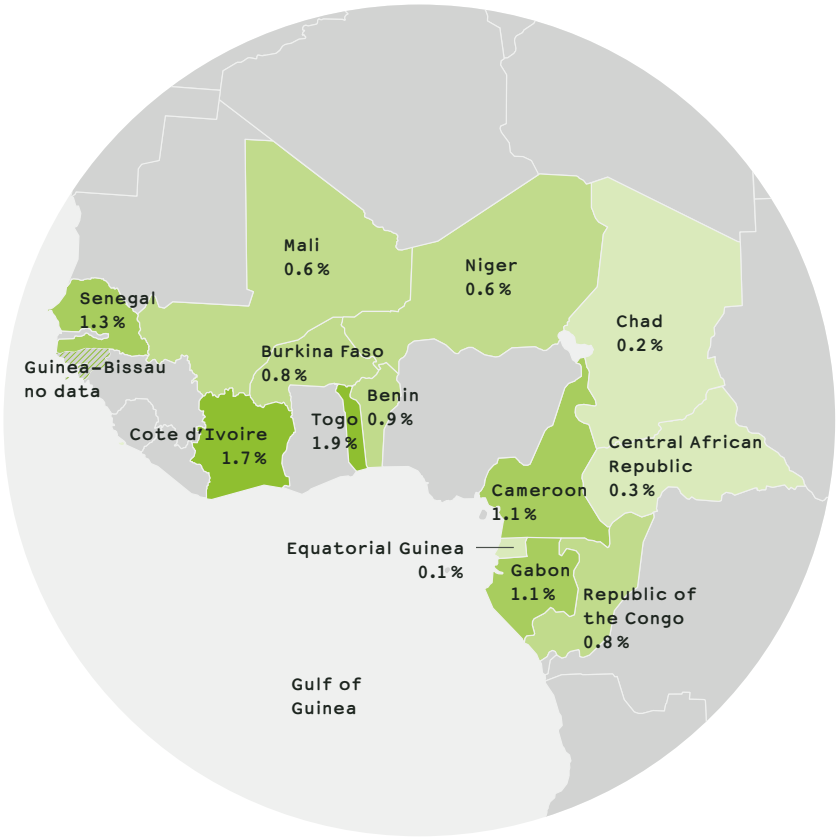
has improved the regulatory framework. The new regulations were presented during the Learning Sessions that took place on 24 and 25 March 2014 in Dar es Salaam. They include higher demands on the insurance brokers and faster settlement of claims, normally within three working days.

Key factors for this success are cost-effective distribution and servicing channels. The goal must be to use the existing infrastructure and distribution channels via microfinancing organisations as effectively as possible. However, without the active support of the governments, particularly in the health and agricultural segments, the number of microinsured will only rise slowly. Munich Re Foundation will continue to support the process.

Learning Sessions facts and figures

With almost 350 participants from 24 countries, the Learning Sessions in Cameroon were a milestone in the development of microinsurance in West Africa. The event was organised by CIMA with the support of the Ministry of Finance of Cameroon, the Fédération des Sociétés d'Assurances de Droit National Africaines (FANAF), Munich Re Foundation, the Agence Française de Development (AFD), the International Labour Organisation (ILO), Making Finance Work for Africa (MFW4A), the German Society of International Cooperation (GIZ), the Access to Insurance Initiative (A2ii), the International Association of Insurance Supervisors (IAIS) and the Microinsurance Network.

More than 120 insurance experts travelled to the Learning Sessions in Tanzania. These sessions were jointly organised by the Tanzanian Insurance Regulatory Authority (TIRA), the Financial Sector Deepening Trust (FSDT), ILO's Impact Insurance Facility and Munich Re Foundation.



Insurance penetration in the CIMA region

CIMA (Conférence Interafricaine des Marchés d'Assurance) is the insurance supervisory authority for 14 West African states. Insurance is still in its early stages in this region, less than 2 % of the people have a microinsurance policy.

- No data
- < 0.5 %
- 0.5 – 0.9 %
- 1.0 – 1.5 %
- > 1.5 %

Source: The Landscape of Microinsurance in Africa 2012

Insights – Microinsurance in the CIMA region Jean Claude Ngbwa

Jean Claude Ngbwa

is Secretary General of the Inter-African Conference of Insurance Markets, CIMA.

Importance for a sustainable economic development

The CIMA region currently covers fourteen African countries with some 150 million inhabitants, most of them living on less than US$2 per day. In this context, microinsurance offers a powerful instrument for the promotion of economic growth by increasing the resilience and welfare of low-income households. Making financial and insurance services available to the less fortunate can help them acquire and protect the tools and equipment needed to improve their earning capacity and provide for dependants. It is a strong weapon in the fight against poverty.

Obstacles and options for action

For microinsurance to be viable, the insurers need to achieve a critical mass, control transactional costs and reduce the risk of adverse selection. One key obstacle to scale up microinsurance is the lack of confidence between customers and insurers due to insufficient market discipline. For example, if claims are not paid in a timely manner this may result in insurers being considered as dishonest and unreliable partners. As supervisors, we have only a limited capacity for influencing market discipline, as it is intrinsically linked to people and behavioural issues. However, supervisory measures such as public disclosure and corporate governance requirements can help foster market discipline. The process has started with the commission using more enforcement power against insurers whose conduct is unprofessional. The development of microinsurance also depends on well-developed infrastructures. Some weaknesses in public infrastructure, such as a lack of professional expertise, are beyond the control of the supervisors.

Other challenges faced by microinsurers include training their staff in microinsurance, identifying prospective customers, understanding the demands and risks of the market and investing in start-up costs including product development. Most of these challenges should be addressed together in a coordinated public-private partnership with the involvement of every stakeholder. As supervisors, we strive to adjust the control environments to address microinsurance risks. In our market development mandate, we would like to support the development of microinsurance by encouraging existing insurers to serve low-income segments; we are committed to adapting laws and regulations to support the evolution of more inclusive insurance systems.

Role of Munich Re Foundation

First of all, I would like to acknowledge and appreciate the inestimable support of Munich Re Foundation in the success of the Microinsurance Learning Sessions in Douala. In the coming years, we will demonstrate more involvement in the International Microinsurance Conference which provides a great opportunity for networking, learning and staying aware of the evolution of microinsurance across the world. In 2015, we hope we can effectively contribute to the success of the 11th conference which will be held in Africa. We also expect a stronger partnership for landscaping microinsurance in the CIMA Region.

More generally, the CIMA microinsurance plan adopted in March 2014 provides the basis for support from all partners, including Munich Re Foundation. This plan seeks to significantly improve the microinsurance penetration rate in our countries. It involves activities such as training and capacity building for players, product development and the development of mobile insurance. Our plan also seeks to facilitate the availability of key information and statistical data on microinsurance business, promote consumer education and raise awareness to instil an insurance culture in low-income households. Any technical assistance in achieving these objectives is more than welcome.

For further information on this issue:

www.microinsurance-cima.org/en

Dense fog rises at Sidi Ifni on the coast of Morocco and drifts over the foothills of the Anti-Atlas Mountains. Fog nets can extract particularly large quantities of drinking water in this region.

Right: Young women fetching water in Kabale, Tanzania. They must often walk three hours or more each day to obtain clean water for their homes. As a result, they miss important school lessons. Their chances of getting a good eduction diminish.

Optimising a bionic principle

Where in arid regions, rain and groundwater resources are too meagre to supply drinking water, the extraction of water from fog is an obvious alternative for improving the supply of drinking, process and irrigation water. Technical, ecological and socio-economic studies are required for sustainable optimisation of this seemingly simple solution.

Annette Menzel

Annette Menzel
has been extraordinary professor for ecoclimatology
at the Technical University Munich since 2007.
Her research focuses on the interaction between
atmosphere and biosphere.

What do a beetle in the Namibian desert, laurel forests on the Canary Islands and very tall poles with nets stretched between them, known as fog collectors, have in common? They all make use of a similar principle: the extraction and collection of water droplets from fog drifting on the wind. In meteorological terms, fog is a low-hanging cloud containing water droplets of up to 30 microns in size with a low visibility of less than one kilometre. It occurs particularly frequently and intensively near coasts and mountains, where moist air masses permanently cool down above cold sea currents or are forced by orographic lift into higher elevations so that the air moisture condenses into cloud or fog droplets. Fog nets can therefore be placed wherever rain is scarce but fog and wind are plentiful. In addition to California, this includes areas in Mexico, Peru, Chile, Spain, Morocco and South Africa, not to mention regions in the Himalayas.

The technical principle has been taken from nature, is therefore bionic, and is quite compelling: without the use of any energy, the captured water drops accumulate in the nets, flow under the force of gravity along the threads, fall into collection troughs and from there are piped into tanks or directly into the valley. Installation is easy, materials such as shade nets are relatively inexpensive. An average of three to ten litres of water per square meter can thus be collected on a daily basis. The challenge for engineers is to check the structural design for high wind loads and ensure that the nets themselves withstand wind speeds of 100 kilometres per hour.

The yield depends first of all on the climate conditions: the decisive factors are the water content of the cloud, droplet size, wind speed and the duration of the annual fog season. To identify the right location, it had previously been necessary to set up a small test collector and operate it reliably for a certain period of time. New techniques such as the use of satellite information and meteorological model data as well as automatic test collectors using remote data transmission could simplify the search for the site in the future. If the water is not directly required for drinking, it can also be used for reforestation, as was the case in the Spanish region of Valencia following a forest fire. Or it can be used in agriculture to irrigate agaves such as in Chile.

The efficiency of the systems can be even further increased by selecting suitable net materials. New 3D fibres are said to secure a three times higher yield than conventional nets. But which material is in what circumstances superior, so that the higher acquisition costs can be offset by increased output or greater durability? Practical tests in climate chambers, wind tunnels and in the field show yield differences of up to 100 %. Numerical modelling approaches even suggest differences of up to as much as a factor of four. In such cases, science is asked to set up general yield models for fog nets of different materials.

Concerning the points raised so far, technical solutions or ecological optimisation are required to ensure that fog nets supply as much water as possible under many different conditions. Further reflection is also still required: should the technology be introduced on a large scale? Is the water suitable for drinking without any restrictions? How should the water be distributed? Who will take care of the maintenance of the systems? If tears in the nets are not promptly repaired or pipelines not serviced and cared for, water extraction from the fog nets is quickly compromised. For this reason, the social factors “leadership” and “ownership” are decisive for the long-term success of such facilities.

Education is an important pillar of development. The photograph shows a school in Morocco. Education also plays a major role in the fog net projects run by Munich Re Foundation: schools are involved in all the locations.

Water

Fog nets in Tanzania — Clean water for schoolchildren

How can drinking water be harvested from fog and dew? In areas of high atmospheric humidity, fog collectors can make a valuable contribution to drinking water supplies. So too in Tanzania, with great success.

The idea has been stolen from nature: just like a spider's web in the morning dew, collectors set up for this purpose catch and hold water drops from fog clouds. Whenever enough fog moisture has been retained by the nets, the force of gravity causes the water to flow into collecting troughs. In arid regions of the earth, this allows clean drinking water to be obtained.

The area roughly 200 kilometres to the southwest of Mount Kilimanjaro offers ideal conditions. The climatic and topographic boundary conditions near to the major Serengeti and Tarangire national parks are perfectly suited to the production of drinking water from fog collectors. Above several salt lakes — some of them bigger than Lake Constance — heavy fogs form every night and, depending on their intensity, gradually dissipate during the early morning hours as the sun grows stronger. In addition to these salt lakes, a mountain ridge running along the African continental rift stirs up thermal winds that drive the fogs across the highlands. The German organisation p(e)d world has been setting up fog nets here since 2009. The foundation has been supporting the project since 2013.

Bernhard Küppers and Christina Bösenberg, both founding members of the p(e)d world e.V. association, have been involved for several years in school projects in the district, where they became aware of the major problems with water supplies. Traditional well construction is not possible, as the settlements are located on a highland plateau at an elevation of over 2,000 metres. Children — most of them girls — must walk several hours each day to fetch water, usually of inferior quality. At times it is muddy, and it must always be boiled.

Project launched following promising tests

The project started in 2009 with the installation of small test collectors by p(e)d world at ten different locations. With a daily yield of ten litres of water per square metre, the result was more than satisfactory. The installation of large fog nets could begin. Several large double collectors with a net surface area of 80 square metres each were thus set up at two schools in Qameyu and Umagi. They supply more than 600 pupils

almost completely with drinking water. The peak values in Qameyu even often exceed 30 litres per square metre of fog net surface area.

Of course, this cannot be accomplished without local support on site. Ochieng Anudo heads a small Tanzanian NGO. He takes care of the formalities with the authorities, keeps the population informed and coordinates the Tanzanian workers during net installation. Pupils and teachers are also always involved, as schools, in particular, have proven to be ideal locations: the teachers reliably record important measurement readings, carry out small repairs on the collectors and integrate the pupils into system monitoring. The water is collected in tanks from where it is ladled out and carried to the school. Different children are assigned to water supply duties every week.

Strong demand in the region

News of the success at Qameyu and Umagi spread quickly. More and more schools in Babati asked to be included in the project. With the financial support of Munich Re Foundation, p(e)d world has been able to set up five more double collectors at three schools since the end of 2013. They supply more than 1,000 pupils with drinking water. Two more fog nets have been installed in the community of Daraja la Mungo. A new experience for p(e)d world: this community is home to a population far exceeding 1,000 people, some of whom live in the most basic of mud huts distributed over an area of several square kilometres. In contrast to the schools, a village executive officer and people appointed from the community are responsible for taking care of the nets installed at this location.

The p(e)d world organisers want to install the next three double collectors at larger schools at the beginning of 2015. The test sites have already been selected, also in the neighbouring communities Tumati and Monghai. A pupil needs two to five litres of drinking water a day on average. A double collector allows approximately 100 children to be supplied with clean water. This also benefits the pupils in other ways: they have more time to study, more time for themselves, more time to lead a responsible life.

Left: In Qameju, Tanzania, school teacher Balthasar holds classes for 400 pupils. Thanks to the fog nets and the rainwater storage tanks, the school always has a sufficient supply of fresh water.

Right: The drinking water from the fog nets is stored temporarily in huge tanks. In Endabok, a project village in Tanzania, a girl fetches fresh water. Formerly, she had to walk several kilometres to the nearest spring.

Below: The fog nets in Tanzania are in a good condition. Residents have appointed managers who take care of the equipment and its maintenance.

For further information on this issue:

www.ped-world.org

Fog net technology — FogHarvester delivers impressive results

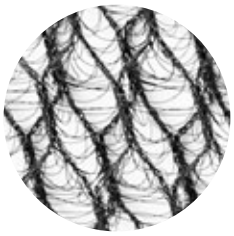
Since November 2013, a large-scale test system consisting of six fog collectors has been in place on the top of Mount Boutmezguida in Morocco. The goal: to obtain drinking water from fog and dew even more efficiently. The first results became available at the end of the fog season in June 2014 — they are impressive.

To improve fog net technology with the simplest means possible and at low costs — this is the goal pursued by WaterFoundation Ebenhausen in cooperation with the Munich industrial designer Peter Trautwein. For more than 18 months, Trautwein concentrated on the concept of harvesting drinking water from fog and developed a new collector. His FogHarvester now stands at an elevation of 1,225 metres in the Anti-Atlas Mountains. The test system will provide critical insights into the best structural design and the most effective materials. Mesh nets, posts, steel cables and rubber expanders must prove their ability to function under extreme weather conditions and at wind speeds of up to 120 kilometres an hour. Munich Re Foundation supported the installation of the system with funding, and organised important contacts in Morocco, especially with project partner Dar Si-Hmad.

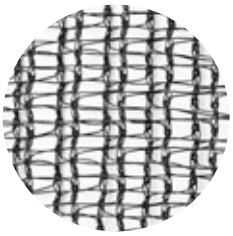
What's new about this FogHarvester?
No wind, no water. It's the wind that drives the suspended water drops into the collector. The stronger it blows, the higher the strain on the material. To take the wind of its sails, Peter Trautwein reduced the surface area of the net from the original 40 square metres to just nine square metres. Six of these small nets were installed side by side, stretched across metal frames, each attached with rubber expanders. The nets consist of six different materials and structures. They range from simple so-called Raschel nets, the standard in fog nets for many years, to three-dimensional

Net types

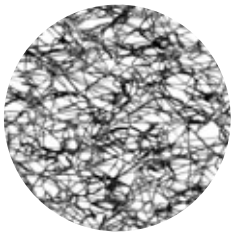
Six different types of net were tested in the FogHarvester to compare the yields from the different kinds of fabric. The position of each of the fabrics was changed in the test panel at several intervals. The result: spacer fabric, hail-protection nets and enkamat provided the best results. A second testing phase is carried out.



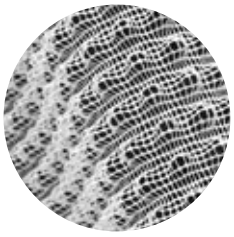
Spacer fabric (PES)



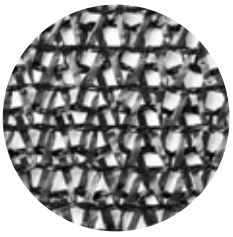
Hail protection net (HDPE), double-layered



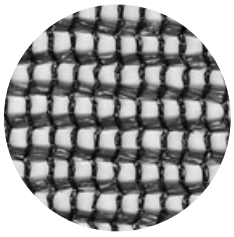
Enkamat 7220 (PA6)



Dimple dot fabric Type F-20200/14 (PES)



Raschel net (PP), double-layered



Shade net (HDPE)

Left: Peter Trautwein (left), who designed the new fog nets, discusses progresses with the project partners in the field. He explains how the water yield and quality can be measured.

Above: Six different kinds of net milk the fog in the test facility at the highland laboratory. It emerged that low-cost nets also deliver good yields. This can give fog net technology a new boost.

high-tech textiles. A sturdy plastic grid mounted on the leeward side of the net supports the delicate fabrics. The dynamic net holders are also new. The new structure fitted with rubber expanders is no longer rigid and inflexible but now pliant and at the same time abrasion- and weather-resistant. The drip trays that are made of food-grade poly-ethylene, are elastic and move in the wind. All materials used are characterised by UV-resistance, as not only the force of the wind but also the solar radiation is not to be underestimated.

Research support

Annette Menzel, Head of the Department for Ecoclimatology at the Technical University Munich, and her team are conducting the scientific research for the fog net project. During the last fog season from December 2013 to June 2014, the water yields, wind speeds and direction, the temperature and relative humidity on top of Boutmezguida were measured on a daily basis. The Technical University Munich purchased the requisite measuring instruments with our financial support. Members of the university staff worked together with the WaterFoundation team and local helpers to install tipping counters, wind gauges and the requisite data loggers. The loggers automatically transfer the data readings to Munich so that technical failures are quickly noticed.

Things did not always proceed smoothly: sand in the fog water led to tipping counter failures, problems occurred while reading out the data, a technical error in a data logger was only noticed at a later stage. After overcoming the initial difficulties and obtaining six months of data, Annette Menzel and her staff are justifiably proud of the results of their research work. Within the framework of the project, two bachelor theses have so far been successfully completed and have provided important insights into net types, yields and suspension methods.

Promising results

Eagerly awaited by all the project partners, the first water volume statistics have now been made available. They clearly show that three of the six nets tested consistently deliver the highest water yields. These are approximately one third higher than from the Raschel nets previously used. This is an impressive and pleasing result, as each additional litre of water translates into more quality of life for humans and animals.

The quality of the fog water was also analysed in detail. It is a great deal cleaner than the water from the well which previously had been the only source of drinking water. What surprised everyone was the low mineral content in the fog water. The value apparently depends strongly on the location of the nets. No problem, the experts tell us soothingly: it had already been planned to mix the fog water with groundwater from the region. This balances out the mineral deficit.

For Peter Trautwein and WaterFoundation, success is no reason to rest on their laurels. They want to optimise the test facility in cooperation with the Technical University of Munich. Structural details are being improved, rubber expanders and net textiles replaced, collecting troughs enlarged. The data loggers are also being renewed. When the FogHarvester goes into action in 2015, everything must be perfect.

Fog water analysis

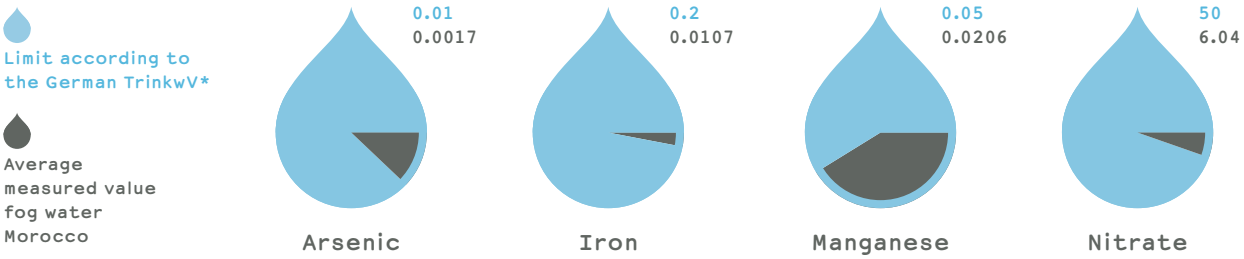
The EU and Germany have set down very precise threshold values for drinking water. They apply, for instance, to mineralisation, arsenic concentration and iron, manganese and nitrate content. Our water analysis showed that fog water is far from nearing the critical mark and has good drinking water quality.

Source: Munich Re Foundation 2015; data basis: WaterFoundation

pH value

Mineralisation (mg/l)

Contamination (mg/l)



* German Drinking Water Ordinance

Fog water tastes very refreshing – Interview with Herbert Hruschka

Herbert Hruschka

Process engineer and environmental expert Herbert Hruschka has been supporting WaterFoundation Ebenhausen for many years in all matters relating to water quality. In June 2014, he sampled water from the FogHarvester in Morocco for the first time. The Bavarian State Office for the Environment in Augsburg and the Water Authority of Landshut analysed the samples. The results are very promising.

Mr. Hruschka, for non-experts it's difficult to imagine that you can drink water obtained from fog without chemical treatment. Is the water really so clean?
Fog water is very clean. The water harvested by the project in Morocco is condensed water vapour from the Atlantic. Impurities that affect the quality of the water can, however, be caused by the atmosphere or soiled nets. Luckily, there are no companies that pollute the air in the area of FogHarvester. The water can be consumed without treatment.

The water analysis results for the FogHarvester were made available in July 2014. Is the fog water comparable with for example German drinking water?
The drinking water in Germany also varies in quality. This depends on the ground from which the water is pumped, or on the water tank from which it is supplied. In the German Drinking Water Ordinance, the legislator has specified threshold values for certain parameters that must not be exceeded. The fog water from the FogHarvester meets all these limits. It also contains low concentrations of salts, minerals and trace elements. It is therefore highly suitable in both physical and chemical terms for use as drinking water.

In Morocco it is planned to mix the fog water with groundwater. Is this possible?
Depending on the chemical composition, mixing water from different sources can cause problems. For example, if iron-rich groundwater is brought into contact with oxygenated fog water, the iron oxidises and precipitates in the form of flakes. The water then turns red and forms a rusty layer on the inner sides of the cisterns and pipes which constricts the open cross-section. This can block up the pipes.

Are there other special aspects?
When mixing the water, the most important parameter is the pH value. It indicates whether the water is acidic or alkaline and largely determines the solubility of substances contained in the water. Problems during mixing may result from the fact that the pH value changes logarithmically, while changes in the substance concentrations are linear in progression. This can affect the quality of drinking water or damage the piping system. As soon as the results of groundwater analysis are available, we will see whether further action is needed.

The fog water is stored in cisterns. Does the water not become mouldy?
The cisterns are buried in the ground and are protected from sunlight and external influences. In addition to this, long storage periods are not necessary due to the size of the tanks. The water consequently remains fresh.

You will probably already have tried the water. How does fog water taste?
Of course I tried the fog water immediately. It is colourless and odourless and tastes very refreshing.

Fog nets in Morocco — Moving towards success in small steps

In addition to Tanzania, Munich Re Foundation is also active in Morocco. We have been supporting a fog net project in the Anti-Atlas Mountains since 2011. Just installing the collectors is not enough.

The goal of the project is to obtain clean drinking water in this arid but fog-intensive mountainous region. The local population benefits from this, in particular the women and children. They are saved the often long and arduous trips to collect water. As a result, life quality is improved. The girls have more time for school. Often enough, the drinking water is sufficient to also supply animals and water vegetable gardens. Our partner organisation Dar Si-Hmad has erected 600 square metres of fog nets on the 1,225 metre summit of Mount Boutmezguida. The organisation has built a water tank, installed water pipelines and procured filter systems. Several villages and one school in the south of Morocco are to be supplied with drinking water.

The final construction measures

Some final touches remain to be completed. The part of the pipeline system required to transport the fog water into all villages and farmyards still needs to be installed. Only one settlement has so far been connected up. It took almost a year until construction work could at last be commenced in August 2014. The Moroccan state financed this final project stage by making €140,000 available. This has made the final spurt to the finishing line possible. Moroccan project manager Jamila Bargach hopes that the fog nets can be inaugurated with a grand opening ceremony on 22 March 2015, the next World Water Day of the United Nations.

Africa's first fog observatory

Despite the delays in pipeline construction, significant parts of the project were successfully concluded in 2014. Directly below the summit of Boutmezguida, the first fog observatory of Africa has been built. Dar Si-Hmad can be proud of this achievement. All the technical equipment of the fog net system is housed in a small building where it is technically monitored, important data collected, the water flow measured and the filter system operated. Fitted with a modern solar system, the small observation station works completely independently of the main power grid.

A large new cistern has been built on Mount Boutmezguida. It is located near the village school and stores water from the fog nets. This allows the villages in the valley to be supplied with water for several months.

A mule being loaded with water canisters at the old well. The water site is located far away from the villages. However, not every family owns a pack animal. Mothers and daughters must often set out on an arduous trek each day to collect water.

Step by step to success

With the financial support of the Moroccan Hydraulic Bassin Agency, Dar Si-Hmad has been able to build a second 250 cubic metre cistern for water storage. The system has now therefore a storage capacity of 500 cubic metres. This is very important for bridging the fog-free seasons. The fog water in the cisterns will be mixed with spring water and thereby enriched with essential minerals.

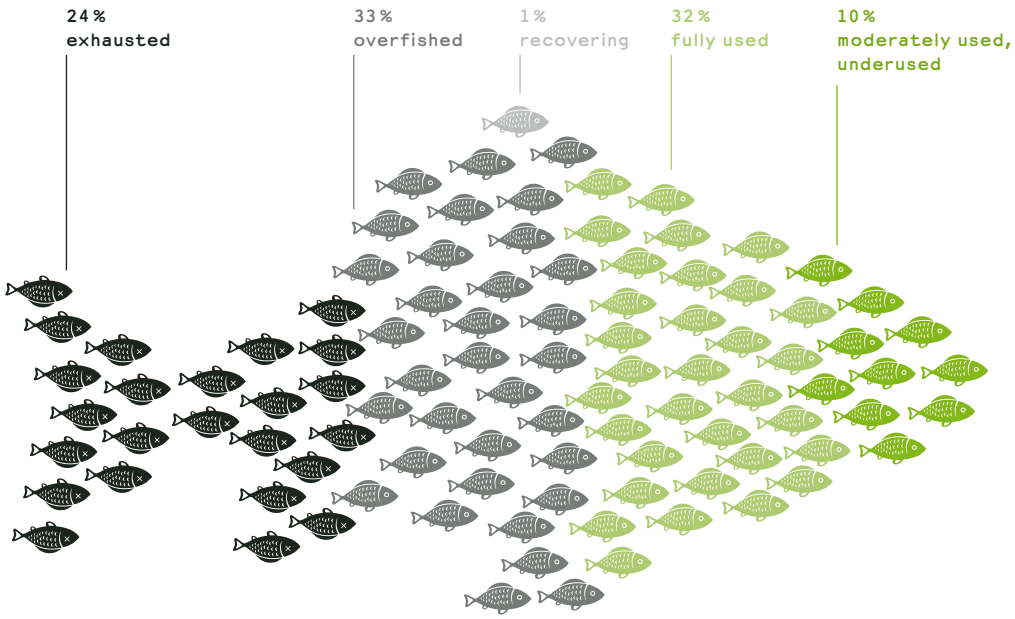
The technical aspects of water production are part of the task. This includes training the local people in handling this limited, precious resource. Dar Si-Hmad has designed a training programme for children and adults specifically for this purpose. In the WASH workshops (Water, Sanitation and Health), trainers teach specific target groups how to treat water responsibly. They also explain the basic principles of hygiene such as regular hand washing. The four-day training course was first held in June 2014.

As the houses in the mountainous region so far have no sanitary facilities, the problem of sewage disposal needs to be addressed. In two technical studies conducted prior to implementation, Dar Si-Hmad examined which solutions are most suitable.

Now everything is ready for the start. Even the prepaid system with which the villagers pay a small fee for the water has been tested several times. The pipeline system works! When in spring 2015 the last construction measures have been completed, the long wait will have been worth it. Then fog water will flow down Mount Boutmezguida to the people in the villages.

The fishing season for the Dutch herring starts every year on 3 June. In 2014, the catch was limited to 200 million kilograms. Fish such as herring are an important source of protein for millions of people. We must therefore handle this important resource carefully.

Can the oceans feed the world?



Status of global fish stocks

Experts are sounding the alarm: more than half of the fish stocks in the world are overexploited or exhausted. Above all in the North Atlantic and the Mediterranean, modern fleets with sophisticated fishing methods and huge trawling nets have decimated the stocks.

Source: Munich Re Foundation, Positions 2014

Fishing has been practised as long as mankind has existed. For a long time, the oceans were safe from overexploitation by humans. Fishermen were exposed to significant risks during their work, the oceans were considered large and unmanageable. Local fish and shellfish stocks were only at risk in isolated cases. This changed with the industrial revolution when machines replaced muscle power.

Rainer Froese

Rainer Froese
works at the GEOMAR Helmholtz Centre for Ocean Research, Kiel, and is one of the leading marine biologists worldwide. In numerous publications, he has documented the overfishing of the oceans and has developed solutions for preserving the stocks in the long term.

Modern fishing vessels are over 100 feet long and deploy huge nets at all depths. The electronics are getting better and can hunt down the fish in their last areas of retreat. The results are well-known: the stocks of fish in the world's seas have fallen in the past 50 years by approximately 90%, the catch volumes have been stagnating for approximately two decades. And this despite the global increase in fishing. More frequent, more extensive, longer and deeper fishing operations are required just to keep the catch volumes constant. The yield is diminishing in comparison to the work required, as the amount of remaining fish is decreasing. As the number of newly-targeted species such as orange roughy, hoki, Chilean sea bass and also the unfished sea areas is steadily in decline, the pressure on the resources is increasing. The number of fish stocks that are deemed to have collapsed because they produce less than 10% of earlier catches is growing continuously all over the world.

But there is good news too. In the International Law of the Sea Treaty of 1982, the governments worldwide came to an agreement on the sustainable use of fish stocks. This agreement has so far been transposed into national law by New Zealand (1995), Australia (2000), the USA (2006) and Europe (2013). Fish stocks in the waters of these countries are slowly recovering. It is estimated that in Northern Europe, the sustainable use of recovered stocks will allow catches of roughly twice the size. Sustainable fishing practices could account for about 100 million tons of fish per year worldwide. The speed with which fish stocks recover depends on the natural productivity and fishery pressure during the recovery phase. If fishing were to be temporarily stopped completely, most stocks could attain a level that would allow large, sustainable catches within three to five years. This would be the most profitable solution, as it would return the highest profits over a period of about ten years. If fishing continues at a low level, recovery will take longer. In any case, growing stocks mean higher catches.

Even in the short term, a lot can be improved, for example in the use of the fish caught for eating purposes. At present, roughly one-third of the global catch is processed into fish meal, which mainly ends up as food for predatory fish in aquacultures. In these breeding farms, more fish must be used than is ultimately produced. It would be much better to directly market the industrial fish that are processed into fish meal, such as anchovies, sardines, sprats, herrings or mackerels. Aquacultures only make sense if the marine life they hold does not need to be fed and catching it from the sea would require substantial interventions into the ecosystem. This is the case, for example, when mussel beds are harvested by dredges. Instead, mussels can be bred in appropriate aquaculture facilities on ropes or poles. There they are protected from predators, they filter their food from the water and can be easily harvested. Such systems also promote the recovery of the seas, since nutrients are absorbed in eutrophicated areas such as the Baltic Sea, and are removed along with the harvest from the system.

Consumers can actively support the sustainable management of the oceans by buying seafood from intact stocks. However, it is difficult to make the right choice. Alone in the North-East Atlantic, there are 12 different kinds of herring: while the North Sea herring is currently doing well, the stock in the western Baltic Sea is much too small. The sustainability seals should actually help the consumers in making their decisions. Unfortunately not all seals deliver what they promise. This is demonstrated by the examples of the North Sea pollock and cod from the eastern Baltic. According to official surveys, the stocks of both species are in poor condition, and yet they bear the seal of the Marine Stewardship Council MSC. A rule of thumb for shopping at the fish counter goes as follows: give native fish priority and from these select the larger specimens. These fish were hopefully able to propagate before they were caught and so ensure the supply of fish in the coming years.

If the framework conditions are right, the seas can without a doubt make a major and lasting contribution to a healthy diet for mankind. Provided the rules for sustainable fishing set down in international maritime law are finally implemented.

A fisherman in the Sundarbans in the Bay of Bengal throws out his fishing net. The traditional fishing methods rarely lead to overfished stocks. Yet it is these poor people who suffer most quickly when the stocks decline.

2014 dialogue forums

Starving in the midst of abundance?

Whereas in many countries, hunger and malnutrition prevail, parts of the human race are eating themselves sick in the truest sense of the word. The dialogue forums in 2014 addressed a wide range of the nutritional problems faced by mankind, proposed potential solutions and took a critical look at our consumption habits.

Some success can be reported: the Millennium Development Goal of the United Nations of halving the proportion of hungry people in the world population has been reached. Nevertheless, the situation is consistently dramatic in numerous regions of the earth. According to the Food and Agriculture Organisation of the United Nations, FAO, one in eight people around the world do not have enough to eat to be able to lead a healthy and active life. In other parts of the world, however, there is an overabundance of food that makes you sick. Diabetes, often caused by obesity, is one of the most pressing health problems of the 21st century. Alone in 2013, approximately 5.1 million people died worldwide from the effects of the disease. By 2035, the number of today's diabetes sufferers is likely to increase from 380 million to 590 million.

These two antipoles clearly reflect the stress field in which the discussions at the 2014 "Starving in the midst of abundance?" dialogue forums took place. The combat against hunger was very high on our agenda. "The world food problem can only be solved if the governments of the countries in which hunger prevails tackle the problem too," said Alexander Müller, Senior Research Fellow at the Institute for Advanced Sustainability Studies (IASS) and former Deputy Director-General of FAO.

Hunger is silent

The best example for this is India. Although 4,000 children die of malnutrition in this country every day, the issue plays next to no role in Indian politics. Müller conceded that "Political processes take a long time and are not without contradictions." Without political pressure, however, it is difficult to change things. "Our problem is that hunger is silent. The people affected often live in rural areas without access to the media." In addition to political pressure, assistance from organisations such as the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) is also required. "Hunger can only be overcome locally by taking the specific conditions and structures on the ground into account," explained speaker of the GIZ Board, Tanja Gönner.

Left: Tanja Gönner, Chair of the Management Board of GIZ, Eschborn, explained that development policies must search for local solutions. There can be no standard one-fits-all solution.

Although experts repeatedly emphasise that the hunger crisis is less a question of quantity than a problem of distribution, agricultural production must keep pace with the growing population. At global level, this has succeeded as far as cereals are concerned: the calculated per capita supply is higher today than in the early 1960s. Not in Africa however: here production has fallen substantially. Innovative forms of cooperation in which the individual in small-scale farming structures negotiates on par with the purchasing companies could provide a remedy.

Organic farming as an alternative

In the fight against hunger in developing and emerging countries, it is important to avoid the mistakes that were made in the developed countries. "Scientists have found that the contamination limits in regard to the climate, the nitrogen cycle and biodiversity have already been reached. Agriculture has contributed significantly to this situation," said Demeter Chairman Alexander Gerber. Ecology pioneer Georg Schweisfurth has also criticised the path taken by agriculture in recent decades: "If the agricultural system had not increasingly developed in the direction of industrialisation in recent decades, we would not need organic certification at all nowadays."

Still, organic farming is controversial; food chemist Udo Pollmer, for example, considers the fact that the yield is lower by about one half per hectare to be a major shortcoming. "If we change everything over to organic, we will need a second globe in the boot," he explained vividly. "It's true that we have lower yields from organic farming in central Europe," agreed Demeter CEO Gerber. But on a global scale, things are quite the opposite. The extremely sensitive locations in the southern countries, where food shortages and hunger dominate, could achieve better harvests with ecological cultivation systems such as composting.

As in agriculture, the depletion of the oceans is also leaving its mark. However, fish is an important source of protein for millions of people. At global level, each person consumes almost 19 kilograms per year on average. But experts are sounding the alarm: more than half of the fish stocks are overexploited or exhausted. To counteract this development, marine biologist Iris Menn from Greenpeace appeals to the consumers: "Alaska pollock, ocean perch, mackerel and eel no longer belong on the plate."

Harmful subsidies

Marine biologist Rainer Froese is convinced that things can be done differently. "Good catches and non-aggressive fishing methods are possible worldwide," explained the expert from the GEOMAR Helmholtz Centre for Ocean Research. About one-fifth of most fish stocks could be netted annually. "The stocks would then level off at about two-thirds of their unfished volumes — a sustainable yield is possible." He considers the alliance of associations and politics that prevent rapid progress as a disadvantage. The fisheries lobby is only interested in the highest short-term income possible and not in what will come afterwards. Politicians haven't a clue, they go along with the lobbyists and make even unprofitable fishing profitable by means of subsidies, said Froese.

Below: Ecology pioneer Georg Schweisfurth from Munich and Udo Pollmer (right), food chemist and author, debate the value and quality of organic farming.

Right: Iris Menn, marine biologist at Greenpeace, painted a bleak picture: many fish stocks are overfished; by-catch is a problem. However, there are also positive signs. EU policies are progressively geared to sustainable fishing.

In Europe, at least, a change for the better can be seen. "The annual fishing decisions are now in line with the scientific recommendations," assured German Jeub, Director of the Ministry of Agriculture. This is important to the extent that the EU fleet operates globally and, with more than six million tonnes per year, has the fourth largest catch potential of the fleets worldwide. What remains unresolved is the problem of illegal fishing. "About 30 % of the fish caught worldwide come from this source," explained Jeub.

Restrict speculation

The issue of food speculation was discussed with heated debate and intense emotion. Thilo Bode, CEO of the consumer association foodwatch, categorically rejects food speculation. "Many people in the developing nations spend 70 to 80 % of their income on food. In the industrialised nations, that figure is only 10 to 20 %," Bode explained. Even minimal price increases can mean that people in poorer countries can no longer afford enough food. "For this reason, short-term price increases are also dangerous," he warned. The conclusions that can be drawn from this situation were explained by the President of the Deutsche Welthungerhilfe, Bärbel Dieckmann: "The fact that a significant proportion of scientists considers financial betting in certain crisis situations to be responsible for price spikes is enough to limit speculation." She called for more transparency on the commodity exchanges and for a ban on investment funds that speculate in agricultural commodities.

Sabine Miltner, who is in charge of sustainability issues at Deutsche Bank, saw things quite differently. "I do not think that even one starving child would be better off if I closed our index agricultural funds tomorrow," she said, adding: "The studies are not unequivocally clear and there is a confusing diversity of interests." She cited droughts caused by climate change as the most important price driver in the agricultural sector, along with political interventionism such as the export ban that Russia imposed on wheat in 2010. In her opinion,

Ratio of the trader categories in the wheat futures market at the CBOT (Chicago Board of Trade)

The wheat traders in Chicago, who conduct hedging transactions for the producers at the futures exchange, are now in the minority. The fate of the market participants is today decided by the financial speculators or swap traders who make bets on a specific price development. At the end of the 90s, the ratio was the other way round. However, a new way of thinking is slowly taking place. Following increasing vociferous criticism, more and more bankers are withdrawing from business with agricultural resources.

Source: Munich Re Foundation, Positions 2014

Moderator Sebastian Herrmann, Süddeutsche Zeitung, led the discussion at the "Food – a pawn in the hands of speculators?" event. Sabine Miltner from Deutsche Bank (right) and Bärbel Dieckmann, President of Welthungerhilfe (middle), in discussion with Thilo Bode from foodwatch.

the discussion is going in the wrong direction. She thinks the topic of investment in the agricultural sector should be given a much higher priority. "US$ 80 billion are required every year to adequately feed the growing global population," she explained.

Focus on healthy nutrition

What can individuals do to mitigate the problem of hunger? "We cannot change hunger in the world through individual behaviour such as eating less meat," clarified cultural scientist Gunther Hirschfelder from the University of Regensburg. But we should try to find a morally and ethically acceptable compromise for our actions. For health reasons too, it cannot hurt to review one's own eating habits. "We are personally responsible for protecting ourselves against illness, and nutrition plays a central role in this", commented Hans Hauner, Director of the Else-Kröner-Fresenius Centre for Nutritional Medicine, decidedly. In his opinion, the majority of Germans actually eat themselves sick. For nutritionist Helmut Heseker, obesity is a major challenge for our society. "If a 40-year old has a body-mass index of over 30, his life expectancy sinks by five to eight years. The influence is therefore similar to smoking," he continued, explaining the problem. According to nutritional therapist Birgit Schramm, the most common nutritional mistake made is irregular eating, possibly during other activities, or frequent snacking.

There is no all-round recipe for optimal nutrition, but common sense can point the way. The international community must fight for the right to adequate food for everyone in the world. The number of projects that aim to improve the nutritional status of the people has been growing for years. However, governments, international organisations and every individual remain under obligation: we need to eat sensibly — and fight hunger in the world.

You can find a detailed summary of the 2014 dialogue forums on our website along with the accompanying "Positionen" publication. It is available from the foundation as a PDF file or as a printed brochure.

www.munichre foundation.org/home/ DialogueForums

Healthy food has long been available in the supermarkets, consumers can now choose from a wide range of products. Many supermarket chains actively promote organic foods as part of their sustainability strategy.

Right: Workers from a plantation in Ethiopia sort the coffee beans. They have joined together to form a cooperative. They thus receive fair wages and social benefits such as health insurance. However, sustainability also means upholding social norms – along the entire production chain.

Sustainability has arrived

"It has something to do with the environment, right?" Answers to this effect were the standard response when passers-by on the street were asked ten years ago what sustainability was about. More profound statements such as "We should leave the earth to our children and grandchildren in the state we found it," were rare at that time.

Thomas Loster

Thomas Loster
is Chairman of the Munich Re Foundation and an expert on climate change and disaster prevention. He has been working in the field of disaster analysis and trends for more than 25 years.

Today, roughly 40 years after the first work groups addressed the concept of sustainability, we are a good deal further. The principle of acting with ecological, social and economic awareness and of preserving resources is being increasingly better understood and given greater consideration — in advertising, in the media and in consumption behaviour. Companies have come to recognise that only sustainable economic management is future-oriented management. Sustainability has become an integral part of political debates. Not only when it comes to climate policies and the energy turnaround, but also in development policies and issues of demography and urban planning.

More than just an environmental topic

The agreement reached by almost 180 countries at the World Climate Summit in Rio de Janeiro in 1992, namely the sustainable development of the world, is increasingly becoming a reality. This required not only countless further national and international conferences but also workshops and campaigns. Legions of committed people of all ranks dedicated their efforts over years, if not decades, to promoting better awareness of this topic too. With the result that the concept of "sustainability" has now been embraced in our daily lives.

For example at the shop counter: chocolate and coffee packaging displays Fair Trade symbols, and even in the discount supermarkets, almost no tin of fish can be found that does not bear the "Certified Sustainable Seafood MSC" label. OEKO-TEX Standard sustainability labels on bed linen, towels and t-shirts are intended to instil "confidence in textiles". Talking about textiles: the efforts of the German Minister for Economic Cooperation and Development, Gerd Müller, to standardise labelling for sustainably produced clothing demonstrate impressively that environmental issues are far from being the sole concern. Social aspects and the right to fair development play the central role in this respect. The minister is calling for social standards along "the entire supply chain, from the cotton plant to the clothes hanger".

Sustainability costs

For many people, this is taking things too far, they are afraid of higher costs. This is based on the idea that sustainability must inevitably succumb to the demand for low cost food and textiles in times of tight budgets. It is correct that low incomes make sustainable consumption more difficult. However, even those on a low budget can more and more frequently find respectively certified products if they look carefully.

Of course, the process of leading a whole society onto this future-oriented path of sustainability will take a long time. This should not deter us, as slow changes can also help us reach the goal step by step. In some areas, there has already been quite a lot of success. Whereas waste separation and environmentally-friendly laundering were formerly something practised only by environmentalists and nature activists, today they are taken for granted by everyone. Those who take an even closer look will find concessions everywhere: in hotels, shops and public buildings. A look at the Internet also demonstrates how important sustainability is. Entering the German term into a search engine returns more than ten million hits. Search results for the English word even exceed the 100 million mark.

The issue has with certainty been strongly advanced by the social media that are growing more dynamically than ever in our globalised world. They ensure that information about mistakes and detrimental developments spread like wildfire to the public. Violating the principle of sustainability can thus develop into a reputational risk. In a transparent world, lip service and greenwashing have ever fewer opportunities of success.

The next sustainability round

Have we reached the goal? No, there is still a lot to be done. The UN Decade "Education for Sustainable Development", for example, has just pointed out that this guiding principle still does not appear often enough in curricula or teaching material. This applies not only to early childhood education but also to schools, professional life and life-long learning to an advanced age. It is clear, however, that the United Nations have at least recognised the problem and dedicated a whole decade to it. When the decade comes to an end at the end of 2014, we must not fear that the topic will vanish into thin air. The "Sustainable Development Goals" that will apply worldwide and follow the UN millennium goals ending in 2015, will give the discussion a new impetus. One thing is certain: goals alone will not be enough. Each person must take sustainability seriously and apply it in everyday life.

Gazipur in Bangladesh is known for its textile industry. Most of the clothes worn worldwide are produced here. Fair wages for the workers and compliance with safety regulations are also the responsibility of the big trading companies and of the consumers.

Award for our project partner Green City

Since 1990, the Munich-based environmental organisation Green City e.V. has been lobbying for greater sustainability, not least in the field of education. The German UNESCO Commission honoured this commitment last year with an important award.

The United Nations proclaimed the "Decade of Education for Sustainable Development" in 2005 to entrench sustainability in education. The title of "Official Decade Project" is only awarded to innovative initiatives that provide outstanding examples of meaningful activities. Green City was recognised as an official project of the decade in 2014 for the second time. The organisation, it was explained, was exemplary in its implementation of the UN global education initiative. For the jury it was of particular importance that Green City gears its education programme to lifelong learning. All in all, the environmental organisation has over 20 employees and several 100 volunteers involved in various projects related to energy, mobility, urban design and environmental education.

Long-term project partnership

As in previous years, Munich Re Foundation supported Green City's "Energy School Munich" project in 2014. In interactive workshops, the association playfully introduces children and adolescents at Munich's elementary and secondary schools to topics such as energy conservation, alternative energy and climate protection. And most successfully too. Last year, more than 500 students participated in the sponsored workshops. The teachers and parents are also very pleased.

Further information on this subject:

www.greencity.de

Although education on power supply is an integral part of most curricula, regular classes often lack the material and devices required for illustrative purposes.

The right module for each age group

The workshops vary in thematic focus and methodology to motivate the students according to the type of school and the age-group to act and live in a sustainable way. The "Sun — full of Energy" module, for example, is directed at grades two to seven in elementary and secondary schools. Its focus on energy wheels, power meters, films, solar modules and cookers is intended to work up an appetite for experimentation and exploration. In three multifaceted workshops, the students learn a lot about power generation, energy conservation and climate protection.

The "Energy for the future" module addresses grades seven to nine at secondary and intermediate schools. Shortly before leaving school with their Certificate of Secondary Education, it is often difficult for many students to choose the right career. It is all the more important that young people are given information about their career prospects. In "Energy for the Future", young people learn about many different professions and are motivated to make a conscious decision for a profession in the field of environmental technology and sustainability.

All modules of the Energy School Munich are strongly connected to the daily lives of the students. Based on the courses of action described, they recognise how they themselves can contribute to a better future — every day.

Green City has every reason to be proud of itself: since 2009, almost 5,000 Munich students have participated in the modules offered by the Energy School Munich. We congratulate the award winners on their success and the prize awarded by the German UNESCO Commission!

Left: The Energy School applies a variety of teaching methods. Photos and maps quickly show the children where the impacts of climate change are particularly strong.

Above: Students learn how a thermal imaging camera works. It is exciting to see how clothes insulate heat. But they also learn how important it is to make houses weatherproof to save energy.

Below: Two girls at the Energy School have just used an ammeter to measure the power consumption of the desk lamp. With these readings, they quickly learn where the big electricity consumers are hiding in school and at home.

Joint university projects

Munich Re Foundation promotes climate and sustainability education in universities and schools with a regional focus in Munich. We not only support education projects but also contribute our know-how to training courses.

Seminar for sustainable solutions at the University of Munich

Since 2010, Munich Re Foundation has been organising the "Water, climate, environment — For sustainable management of global challenges" seminar at the University of Applied Sciences in Munich. Each semester, approximately 15 students are familiarised with the concept of sustainability, current political processes and approaches to finding solutions. Our goal: to enable the students to expand their horizons and prepare them to deal with this topic in their professional lives.

www.hm.edu

Research Workshop on Microinsurance — MILK-project

On 19 March 2014, the seminar took place in Munich for the second time, organised by Munich Re Foundation and the Ludwig-Maximilian University of Munich. Case study examples from Tanzania, the Philippines, India and Mongolia demonstrated how pilot insurance projects can succeed. However, mistakes and market risks were also discussed. The guest speakers included Michael McCord, Director of the Microinsurance Centre (USA), and Barbara Magnoni, Director of EA Consultants (USA), who presented the MILK-project (Microinsurance Learning and Knowledge).

www.evidence-based-economics.de/about-ebe

Lectures at schools and universities in and around Munich

We offer lectures on various topics from our range of expertise to schools in Munich and the surrounding area. Climate change, natural disasters and other topics such as sustainable capital investment as well as issues pertaining to insurance solutions (for example microinsurance, poverty reduction and food security) are among the topics that can be covered. Depending on the resources available, we hold approximately 15 lectures in schools and education institutes of all levels each year.

"Global Change Management" theme week — Eberswalde University of Applied Sciences

The Eberswalde University for Sustainable Development offers an international postgraduate programme in "Global Change Management". Once a year, we invite the students to Munich. The foundation, in cooperation with Munich Re, discusses various issues with about 20 young researchers. The programme includes topics concerning Corporate Social Responsibility (CSR) and the foundation's work (sustainable budgeting, the significance of climate change for different stakeholder groups, adaptation, resilience etc.).

www.hnee.de

Transdisciplinary project with the Geographic Institute of the Ludwig-Maximilian University (LMU) of Munich

Under the direction of Claudia Binder, we organised for the second time a transdisciplinary project seminar for the "Human Geography and Sustainability" Master's degree programme. The foundation set the topic and is at hand to provide students with advice and support. In the 2014/15 winter semester, students investigated the extent to which sustainability is being addressed in small and medium-sized companies using the example of breweries. Another important question was: How is sustainable financial management in the companies understood and applied?

www.geographie.uni-muenchen.de

Science for sustainability — Interview with Claudia Binder

Claudia Binder

is professor at the Ludwig-Maximilian University of Munich. She heads the Chair for Human-Environment Relations which has a strong focus on transdisciplinary studies.

Mrs. Binder, you hold the Chair of Human-Environment Relations at the Department of Geography of the Ludwig-Maximilian University of Munich (LMU). What should we understand under "human-environment relationship"?
The human-environment relationship began with the first human beings about 130,000 years before Christ. At that time, people, as hunters and gatherers, were dependent on the environment and its changes. To adapt as required, they moved to other locations, depending on the environmental conditions. Their lifestyle was sustainable from today's point of view, the resources were able to regenerate within the migration period.

What happens today?
Today we consume roughly 50 times as much water, 20 times as many resources and generate approximately 40 times as much waste per person as did the hunters and gatherers. It is also interesting that we require more than two-thirds of the chemical elements of the periodic table for our modern lifestyles. Today, the central question revolves around who, where, when and how, could contribute to a more sustainable use of resources.

This is without doubt a complex field?
Yes, many areas and human activities are being studied within this context, such as nutrition, communication behaviour, transportation possibilities, housing conditions, working conditions and recreational activities. In these aspects, the investigations are very profound.

Could you provide an actual example?
Let's take phosphorous for example. It is not renewable, but is vital to life because we need it for food production and for industrial processes. Phosphorus is deposited in soils and river sediments, but can only be recovered with great difficulty. It is now important to find ways by which we firstly use phosphorus more efficiently, and secondly by which we can recover it from waste water more effectively and reintroduce it into the production cycle. On the one hand we must prevent phosphorus scarcity while, on the other hand developing regulations to safeguard the global supply.

Why are transdisciplinary projects so important?
In my opinion, transdisciplinary projects are important when it comes to current-day problems in our society, for which each individual, business or region can contribute to the solution. In these projects, the knowledge and perceptions of individuals are linked up with the latest scientific findings. This leads to new ideas for solving problems that are accepted by both sides and are generally implemented in practice.

You are working together with the Munich Re Foundation for the second time now, in a project on sustainability in professional practice. How are research and practice getting along with each other in this project?
The students are very motivated in becoming involved in transdisciplinary projects, as they can already make a contribution to sustainability during their studies in this way; in this case, via cooperation with Munich Re Foundation. They are currently investigating whether sustainability has been accepted and implemented in companies and small local businesses. That's a good question. The challenges faced by the students are to find a common language and define the roles clearly. If the results meet the scientific standards and are of high value for practice, we have achieved our goal.

Internal foundation issues

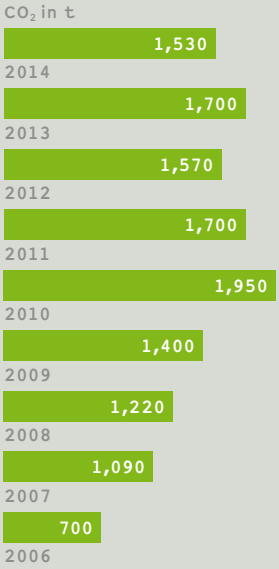
Carbon footprint for 2014 — CO_2 compensation with landfill gas

Our projects generate unavoidable CO_2 emissions as a result of power consumption, heating and business trips. In 2014, the emissions came to a total of roughly 1,530 metric tons. Most of these were incurred by our major events involving numerous international participants (Microinsurance Conference in Mexico, Resilience Academy near Munich) and the related flights.

Our founder, Munich Re, compensates for the emissions from the offices in Munich and business trips of our employees within the framework of its measures towards climate neutrality. For the other emissions we purchased CO_2 certificates and thus supported a landfill gas project in Manaus in the Amazonas state in Brazil. A local power station there uses methane created by the degradation of biological waste. House waste, above all in the emerging nations, contains large quantities of biological substances, as waste is rarely separated. If the gas is not captured, it slowly escapes into the atmosphere and contributes to global warming. Important: the climate-damaging impact of methane is approximately 20 times stronger than that of CO_2.

However, this project does more than just reduce emissions. It improves the electricity supply for the local population which is not connected to the national Brazilian power grid. New jobs are also created and the working conditions in regional waste separation and collection optimised.

CO_2 emissions decreased slightly in 2014. Shorter journeys to the Microinsurance Conference were one of the main reasons. Munich Re Foundation offsets all the CO_2 emissions resulting from its projects.

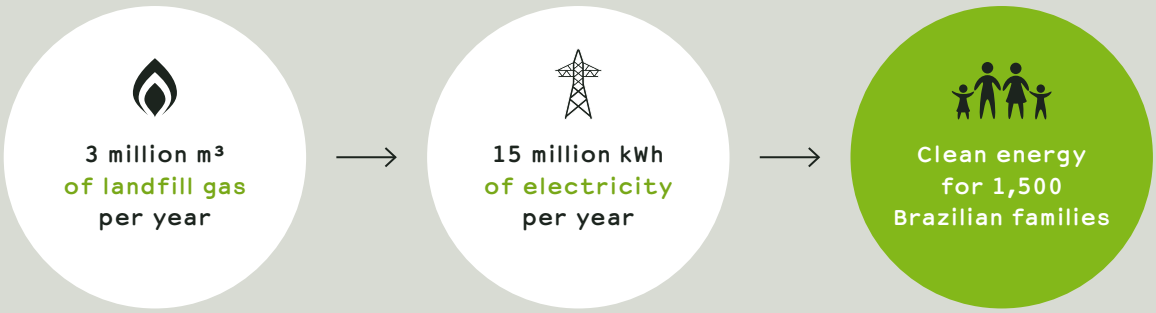


Source: Munich Re Foundation, 2014

Further information on this subject:

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

Fermentation processes generate three million cubic meters of landfill gas each year. The gas can be used to produce 15 million kilowatt-hours of electricity. This electrical power supplies 1,500 families in the region with clean energy.



Internal foundation issues

Global Partners

Microinsurance

Microinsurance Network

Asociación Mexicana de Instituciones de Seguros (AMIS)

Conférence Interafricaine des Marchés d'Assurances (CIMA)

Tanzanian Insurance Regulatory Authority (TIRA)

Munich Risk and Insurance Center (MRIC)

German Society for International Cooperation (GIZ)

German Federal Ministry for Economic Development Cooperation (BMZ)

International Labour Organisation (ILO)/ Impact Insurance Facility

Inter-American Development Bank (IDB)

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

Fog nets

p(e)d World

Dar Si-Hmad

WaterFoundation Ebenhausen

Technical University Munich (TUM) Chair of Ecoclimaology

Energy School

Greencity e.V.

Vituelle Akademie

University of Bremen

RISK Award

Global Risk Forum (GRF)

UN International Strategy for Disaster Reduction (UNISDR)

ONG Inclusiva

Gibika and Resilience Academy

International Centre for Climate Change and Development (ICCCAD)

United Nations University in Bonn (UNU-EHS)

Disaster aid

SOS Kinderdörfer 2013 & 2012

Aktion Deutschland Hilft 2011

arche noVa 2011

Cimate change and sustainability

University of Applied Sciences in Munich

Eberswalde University of Applied Sciences

Ludwig-Maximilian University of Munich (LMU)

Our Team

"Fieldwork in the emerging nations is strenuous, for example in Bangladesh. However, good solutions cannot be developed around a table in Munich."

—

Thomas Loster
Chairman of the foundation
(right with camera)

"In the foundation I have discovered new topics that interest me. Microinsurance, for example, improves the living conditions of poor people all around the world. We can contribute to this with our work."

—

Julia Martinez
Coordinator Microinsurance Management

"Ten International Microinsurance Conferences have brought more than 4,000 insurance and development experts together from all over the world. A lot has been achieved."

—

Dirk Reinhard
Vice Chairman

"Our environment and our society are important to me. I really like the diversity of the foundation's project partners. They come from all over the world."

—

Renate Kramer
Team Assistant

"Supplying people in Morocco and Tanzania with clean drinking water — that is a really nice challenge. I am now looking forward to the big day when the fog water flows at last in Morocco."

—

Martina Mayerhofer
Project Manager (left)

"The Microinsurance Conferences bring insurance experts together. But also the team in the background makes an important contribution. The work in Indonesia and Mexico was immensely enjoyable for me."

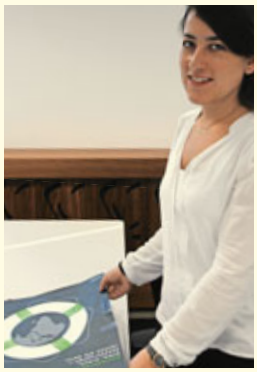
—

Analisa Gradim Pedro
Coordinator Microinsurance Management (right)

"At our Resilience Academy, we bring scientists and decision-makers together to find solutions in cooperation with each other. Early warning systems are a central issue for me."

—

Christian Barthelt
Project Manager



"I have been involved in projects ranging from disaster prevention and preparation to drinking water supplies, microinsurance and sustainability."

—

Diana Urbani
Intern

"We have received 145 applications for the current RISK Award. This means a lot of work. I find it important to not just see the project proposals but also the people behind them."

—

Jayoung Eckl-Lee
Consultant Project Management

Committees and Board of Trustees

Committees

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

IFC Advisory Panel on Business and Sustainability: Member

Microinsurance Network, Luxembourg: Board of Directors, member

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

Siemens Stiftung, empowering people. Award, Munich: Jury member

UN Decade of Education for Sustainable Development, Bonn: National Committee member

UNISDR, Private Sector Advisory Group (PSAG), Geneva: member

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

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Institute of Psychology, University of Heidelberg

Thomas Loster
Chairman of the Munich Re Foundation

Hans-Georg Bohle, in memoriam

Hans-Georg Bohle passed away suddenly on 19 September 2014. The Munich Re Foundation mourns the loss of a Trustee, project partner, and good friend of many years. He will leave behind a deep void.

Over the course of many years we came to value Professor Bohle, who was a professor for Development Geography at the University of Bonn, for his valuable contributions as our project partner and advisor. His immense knowledge gave our projects a tremendous boost; he was an inspiration and mentor to young scientists from all over the world. As a Trustee, he was a valuable member of our team and was influential in determining our strategy.

We mourn the loss of our friend, who will be sorely missed. We offer our heartfelt condolences to his family, and wish them much strength at this difficult time.

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Munich Re Foundation 2014, own blueprint;
Page 11

The Landscape of Microinsurance in Latin America and the Caribbean 2014 — Preliminary briefing Note
Page 23

Munich Re Foundation 2015, own blueprint; basis for data: GIZ-RFPI and Microinsurance Network 2014
Page 27

The Landscape of Microinsurance in Africa 2012
Page 30

Munich Re Foundation 2015, own blueprint; basis for data: WaterFoundation
Page 40

Munich Re Foundation, Positionen 2014
Pages 45, 50

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Greencity e.V., Munich
Pages 56, 57

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Sonja Ayeb-Karlsson
Dar Si-Hmad
Inside back cover

Publications

Own publications

Report 2013
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03/2014
Order numbers
German: 302-08236
English: 302-08237

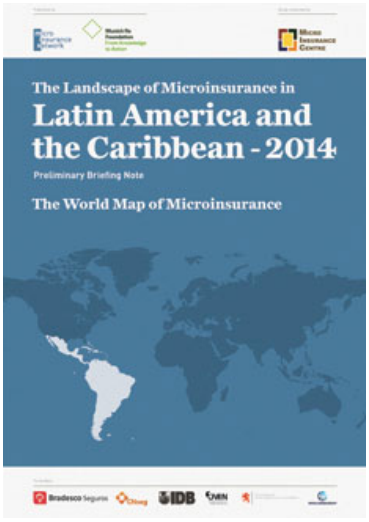
Report 9th International Microinsurance Conference 2013: Insurance for emerging consumers
Date of publication
04/2014
Order number
English: 302-08301

RISK Award:
First-hand news
Best project proposals 2014
Date of publication
08/2014
Order number
English: 302-08391

Positionen Dialogforen 2014: Hungern im Überfluss?
Date of publication
09/2014
Order number
German: 302-08404

Further information on this subject:

www.munichre-foundation.org/home/Publications



Publications with project partners

Microinsurance Learning Sessions Mexico — Report
Date of publication
06/2014

Sesiones de Aprendizaje México — Reporte
Date of publication
06/2014

Microinsurance Learning Sessions Tanzania — Report
Date of publication
10/2014

The Landscape of Micro-insurance in Latin America and the Caribbean 2014 — A briefing note
Date of publication
11/2014

Protegiendo a los pobres — Un compendio sobre microseguros, Tomo II
Date of publication
11/2014
Order number
Spanish: 302-08356

Protéger les plus démunis — Guide de la micro-assurance, Volume II
Date of publication
11/2014
Order number
French: 302-08357

Protegendo a população de baixa renda — Um compêndio de microsseguro, Volume II
Date of publication
2/2014
Portuguese

Current projects 2014

International Microinsurance Conference

Project partners:
The Microinsurance Network, GIZ and CEAR

The International Microinsurance Conference offers representatives from supervisory authorities, donor organisations, the insurance industry, the scientific community and practitioners a forum for sharing knowledge and networking. The conference has been held annually since 2005, each year on a different continent. The aim of the platform is to tackle poverty and create a basis for improving the living conditions of people in developing countries.

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Microinsurance Learning Sessions

Project partners:
The Microinsurance Network, GIZ and CEAR

In some countries of the world, the microinsurance markets are particularly dynamic. Factors such as economic growth, reliable boundary conditions or efficient regulation are decisive factors for such developments. In seminars that focus on regional solutions, we work together with partners to share the related knowledge and experience. These Learning Sessions complete our microinsurance programme.

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The Microinsurance Compendium

Project partners:
ILO and The Microinsurance Network

In November 2014, the book "Protecting the poor — A microinsurance compendium, Volume II" was published in Spanish and French. As a comprehensive text book, the second volume of the compendium addresses contemporary questions that were discussed at our Microinsurance Conference. The compendium is the first comprehensive standard textbook on microinsurances.

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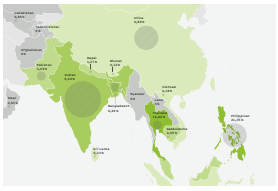

The World Map of Microinsurance

Project partners:
ILO, MFW4A, IADB and MicroInsurance Centre

Since 2012, we have been working together with our partners to make the development of microinsurance transparent all over the world. Studies and interactive maps on the topic are being created for this purpose. In 2014, "The Landscape of Microinsurance" studies were published for Asia. An updated version for the Latin American region will appear in 2015.

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From Knowledge …

Preview of 2015

20 January
Dialogue forum "Global treaties — are they destined to fail?"

6 February
Transdisciplinary project with the Ludwig-Maximilian University in Munich, final presentation

24 February
Dialogue forum "Climate change — will Paris rescue the 2°C climate target?"

3 March
Dialogue forum "Floods, drought, storms — are we prepared?"

9—12 March
Microinsurance Learning Sessions, Zambia

15 March
Start of the summer semester at the University of Applied Sciences, Munich "Seminar on Sustainability"

16 March
Prize-giving ceremony for the 2015 RISK Award at the 3rd World Conference on Disaster Risk Reduction (WCDRR), Sendai, Japan

21 March
Inauguration of the fog collectors in Morocco

13—17 April
Themed week on Global Change Management with the University of Applied Sciences Eberswalde

14 April
Dialogue forum "Poor rich world — fair opportunities for all?"

6 May
Dialogue forum "Do something! On the power and powerlessness of the individual"

21 May
Dialogue forum at the University of Applied Sciences, Munich "Floods, drought, storms — are we prepared?"

6—12 September
Resilience Academy discussing "Enhancing Resilience to minimise Loss and Damage" in Dhaka, Bangladesh

1 October
Start of the winter semester at the University of Applied Sciences, Munich "Seminar on Sustainability"

3—5 November
11th International Microinsurance Conference in Casablanca, Morocco

The 2014 dialogue forums — Starving in the midst of abundance?

At these events, which are open to the general public and held in Munich, we address current topics. 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 and development policies.

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Virtual Academy of Sustainability

Project partner:
University of Bremen

The Virtual Academy is an internet-based learning platform offered by the University of Bremen. It is aimed at helping universities in Germany to embed the subject of sustainability more firmly into their curricula. Students have round-the-clock access to electronic and video-based courses via the internet. The universities use the courses offered by the Virtual Academy in their general studies programmes or to supplement their own sustainability courses. 16 universities even award credit points confirming learning achievements relevant to the course of studies. Munich Re Foundation has been funding this innovative concept since 2012 and 2013. The contents for new modules in 2015 are now in planning.

Education projects in Munich

Project partners: University of Munich, Green City e.V. and Ludwig-Maximilian University of Munich

One of the foundation's aims is to pass on its knowledge to pupils and young students. Our topics determine the content of the "Climate, water, energy — Managing global challenges sustainably" seminars that we have been holding at the Munich University of Applied Sciences since 2010. At the same time, we support the Energy School Munich which seeks to introduce primary and secondary school pupils to the world of climate protection, energy efficiency, resources conservation and similar fields using a fun, hands-on approach. Together with the Ludwig-Maximilian University of Munich, we are planning an interdisciplinary project seminar for Master's students in Geography.

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Resilience Academy — Uniting research, politics and practice

Project partners:
ICCCAD and UNU-EHS

We are inviting 25 young experts from science, industry and politics to an intensive week of study, this year in Bangladesh and next year in Germany. Together we will analyse what resilience means for different societies and how it can be strengthened in emerging nations, in particular in Bangladesh. Field excursions in which theoretical approaches are compared with reality play an important role at these academies.

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Increasing resilience in Bangladesh

Project partners:
ICCCAD and UNU-EHS

In regard to natural disasters and the impact of climate change, Bangladesh is one of the most highly jeopardised countries in the world. In partnership with the United Nations University in Bonn, we support the International Centre for Climate Change and Development (ICCCAD) in Dhaka. In addition to research on the resilience of the people in Bangladesh, the aim is to safeguard several communities in risk zones against natural disasters.

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RISK Award for disaster prevention

Project partners:
UNISDR and GRF

Disaster prevention is more vital than ever and local projects show particular promise in this respect. The RISK Award, launched in 2012, grants a ground-breaking project up to €100,000 in prize money. The winning projects extend the scope of the early warning systems in Mozambique and Tonga. Knowledge acquired from UNU projects benefits our early warning projects.

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Fog net projects in Morocco and Tanzania

Project partners:
Dar Si-Hmad and p(e)d world

Fog nets provide access to ample supplies of drinking water even in arid and virtually inaccessible regions. The foundation is currently sponsoring two projects: one in the Anti-Atlas Mountains of Morocco and another in two regions of Tanzania. We use innovative resources to ensure a fully functioning water supply and thus enhance the life quality and improve the resilience of people at risk. The potential is tremendous.

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Funding fog net technology

Project partners:
WaterFoundation, Peter Trautwein and TU Munich

For decades, fog net technology has undergone hardly any changes. In rough and difficult regions it increasingly reaches its limits: anchoring fixtures break, strong winds destroy the nets, captured water is lost due to inefficient collecting systems. In cooperation with WaterFoundation Ebenhausen we sponsor further development of the technology. A testing laboratory for modern prototypes developed in Munich is currently being built in the Moroccan highlands. The Technical University Munich is assisting the project with scientific work.

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From Knowledge to Action