





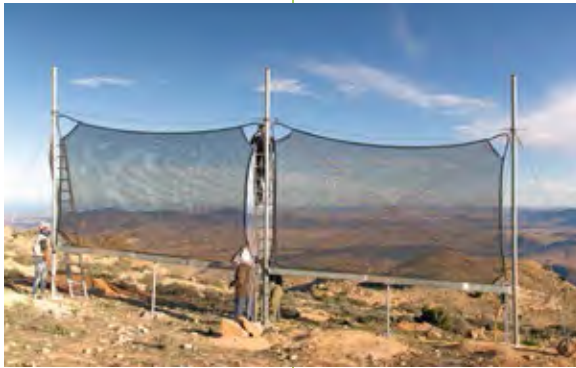
Jan

Feb  
Mar

19 March  
Dialogue forum  
"Will climate change  
get the better of us –  
Or can we beat it?"  
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29 January  
Dialogue forum  
"Transformation –  
Ways forward"  
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4–7 February  
Visit to the fog net  
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Mountains of Morocco  
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21 February  
Dialogue forum "Higher,  
faster, further – Mobile  
amidst traffic chaos"  
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June  
July



9 April  
Dialogue forum  
"Yes to renewables –  
But not in my backyard!"  
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14 May  
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24 May  
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Geneva: Announcement  
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24–25 June  
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Forum: "Protecting the  
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Aug  
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Oct

Nov  
Dec



10–11 September  
Microinsurance Learning  
Session in Abuja, Nigeria  
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## 9th International Microinsurance Conference

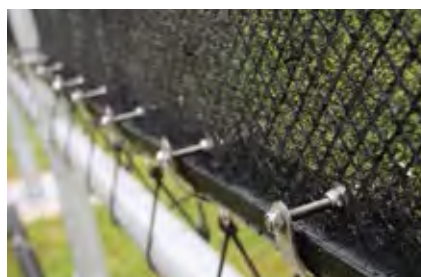
12–14 November  
9th International  
Microinsurance Conference  
in Jakarta, Indonesia  
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15–21 September  
Resilience Academy in  
Savar, Bangladesh,  
on the subject of “Exploring  
livelihood resilience”  
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25 September  
Publication of the  
“IntoAction 4” brochure:  
2012 Risk Award: “Making  
the city of Beira resilient  
to floods and cyclones”  
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29 September  
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Session in Guadalajara,  
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20 November  
Fog nets –  
The highland laboratory  
in Morocco will be built  
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20 November  
Typhoon Haiyan wrecks  
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Ready for the future?			

Cover: The staff of our partner organisation Dar Si-Hmad have installed fog nets in the Anti-Atlas Mountains in Morocco. The nets supply the surrounding villages with water during the fog season.

## Dear Readers,

People at risk are our concern. We help them to recognise dangers, master the problems of daily life and protect themselves against natural disasters. For example in Bangladesh, a country that ranks a low 146 on the Human Development Index of the United Nations. With the "Strengthen resilience in Bangladesh" project, we want to improve people's means of subsistence so that they can quickly recover in the wake of cyclones, floods or other natural disasters. We have selected six communities for this project and have already commenced work there.

At the Resilience Academy, we are researching into how the adaptation and response capabilities of people in the emerging nations can be reinforced in the face of natural disasters. Our goal is to initiate new research projects and encourage the dialogue between the academic world, policy makers and development workers. During field excursions, the participants of the academy learned at first hand about the worries and problems that beset the people living in the places they visited.

Scientists have developed fog nets of a completely new quality. They are more robust and collect significantly more water, but they must still prove themselves under real-life conditions. We are promoting the creation of a highland laboratory with dynamic fog collectors developed by an industrial designer from Munich. This could revolutionise the technology within just a few years and make life easier for thousands of people living in arid highland regions of the earth.

The 9th International Microinsurance Conference took place in Jakarta. Four hundred experts from sixty countries sought after ideas and concepts to advance the market for microinsurances. A study from Asia shows how well people accept these instruments if they have the chance. They are then no longer helplessly exposed to strokes of misfortune such as a death in the family, illness or crop failures and can break out of the cycle of poverty. In keeping with our motto "From Knowledge to Action", the Munich Re Foundation will continue in 2014 to assist people in risk situations.

Wishing you an interesting read,



Thomas Loster



**Michael J. McCord** is President of the MicroInsurance Centre, and a recognised specialist for microinsurance. He talks to us about current trends and interesting market developments.  
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**Hasina** lives in a Dhaka slum. She tells the members of our Resilience Academy 2013 about her life: hard work, happiness and security.  
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**Peter Trautwein** is an industrial designer from Munich. His new fog net designs will revolutionise the harvesting of water from dew and fog.  
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**Jixia Lu** is a researcher at the University of Peking. She is examining how the resilience of small farmers in China against natural hazards can be strengthened.  
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Murugaru is a farmer in Kenya. She checks the market prices and pays her micro-health insurance premium by cell phone. In Africa, mobile phones are playing an increasingly important role in microinsurance.

Right: Over 90% of the households in Bangladesh have a mobile phone. Almost all migrant workers use them for fast and problem-free money transfers.



# Microinsurance for the next billion



Microinsurance helps provide security for low-income inhabitants in developing countries and supports their economic development. However, only a small number of people have access to the products so far. The increasing use of mobile communication networks as a distribution channel gives reason for hope.

Dirk Reinhard



Dirk Reinhard  
is Vice-Chairman of the Munich Re Foundation  
where he is in charge of  
the Microinsurance Department.

Even though the number of microinsurance holders has grown strongly around the world in recent years – of the estimated four billion potential customers, not even every fifth person has access to this instrument. The important role of microinsurance for economic development is uncontested: without insurance, many people can easily plunge back into the poverty from which they may just have escaped, because of sickness, a death in the family or natural disasters. A central problem still remains the relatively high transaction costs coupled with a low premium. Processing a contract with a high insurance sum normally does not require substantially more work than a microinsurance policy.

#### Mobile telephony as a solution

A great deal of hope is being placed in the use of mobile telephony. In Kenya, the pioneer in mobile banking, almost half the population today has a mobile bank account. Experts estimate that in this country alone, more money is transferred via cell phones than by the Western Union, which conducts money transfers for labour migrants all over the world. This is an example of how the so-called Third World demonstrates to the supposed First World how existing technologies can be used for innovative financing services.

The prerequisites for mobile money transfer are ideal in many countries. In Bangladesh more than 90% of the households can be reached by mobile telephone. In Nigeria, one of the richest and fastest growing economies in Africa, almost 100 million people, or two thirds of the population, own a cell phone. 80% of the working population count as poor, of these less than one per cent is microinsured. A huge potential, making the country one of the sleeping giants in the microinsurance sector. A positive side effect is that mobile telephony can also be used for risk prevention, for example to warn people in good time of an imminent natural event. At the same time, the boundaries between micro and other insurances are becoming blurred. An insurance contract can be processed by mobile phone regardless of whether for affluent or for low-income clients.

#### Economic disequilibrium

In addition to the still inadequate number of microinsurance holders, there is a discrepancy in the balance between supply and demand. In most of the regions on the earth, micro life insurances, with a percentage of well over 50%, still dominate the market. In contrast to this, health or agricultural insurances are distinctly under-represented, even though people in the lower income bracket are exposed to major life risks.

The numerous pilot projects for the development of purely market-based instruments with small or no subsidies have achieved barely noticeable success in the agricultural sector in particular. In India – the country with the highest number of microinsured in the world – state-funded health and agricultural insurances today protect hundreds of billions of people, even though experts consider these coverages to be part of the social welfare system.

The example of India shows that success in the case of certain risks is hardly possible without cooperation with the government. The World Bank has also recognised this and is increasingly seeking appropriate partnerships. However, not all the donor organisations are taking this course. Further pilot projects for the mitigation of the impacts of drought and natural hazards that are not aimed at developing into larger or national systems are often funded. Whether this is well invested money or not remains to be seen.

The growing market for microinsurances has awakened the interest of numerous regulatory authorities. In October 2013, the Indonesian Financial Services Authority, for instance, announced the creation of an improved regulatory environment for microinsurances by 2016. The interest of the insurance industry is also increasing noticeably, particularly in Latin America. The traditional markets are often well supplied already so that new customer groups must be accessed for further growth. To facilitate this undertaking, the Latin American Federation of Insurance Companies, FIDES, is cooperating with the insurance associations of Brazil, Guatemala, Columbia, Mexico and Peru to analyse successful microinsurance systems.

The example of the Philippines demonstrates how successful cooperation between regulatory authorities, insurance companies and microfinancing organisations can be. Today, more than 20% of the population in the country are microinsured.

The extensive global potential and the positive development effects should be an incentive to work even more intensively on solutions. A glance at the insurance markets that have already been developed can be helpful. This process has, after all, taken many decades. Expecting huge steps in just a few years will certainly lead to disappointment. A long-term perspective probably not.

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For further information on this issue:  
Microinsurance Conference  
[www.microinsuranceconference.org](http://www.microinsuranceconference.org)



Beatrice Muzinga owns a small shop in Kinshasa in the Congo. Microfinancing and insurance allow the people in low-income countries to manage their finances effectively even though there is still a substantial backlog demand in the country.

# MASON BEYA MUZI



## BOUTIQUE LA RESTAURATION

VIVRES



- THOMSON 16+
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- CUISSE AR. AB.
- MIKONGO
- MAKOSO
- MIPANZI
- MABUMU
- FOIE
- ROGNON
- MOTEMA
- KINGO
- POUMON
- MBANGA
- NGOMBE
- SOSO



## The 9th International Microinsurance Conference 2013 – Innovative business model forges ahead



Microinsurances have undergone substantial development in recent years and improved the lives of countless millions of people. In the meantime, the number of policyholders in Asia and Oceania has risen to more than 170 million. This is the result arrived at by the “The Landscape of Microinsurance in Asia and Oceania” study that was presented at our conference in Jakarta.

India, with more than 100 million policyholders, is by far the leading market in Asia and Oceania. However, insurance penetration (number of microinsureds in relation to the total population) is highest in the Philippines, with 21.3%. Thailand, which in the past had rarely stood at the centre of expert attention, takes second place with a share of 14%. The market is still dominated in these low-income countries by state-run programmes: the strongly or completely subsidised systems today provide coverage for 1.6 billion people.



## Facilitate access to insurance

Despite all the success, there still remains a lot to be done: microinsurances are held by less than 5% of the population in the region. And as long as people with low incomes are not in a position to cope with their life risks, they can only break out of the poverty spiral with great difficulty. Access to insurances promotes their sustainable development and must be made possible for all people. How this goal can be best accomplished and which obstacles must be surmounted on the way to achieving it was discussed by the more than 400 delegates of the 9th International Microinsurance Conference in November 2013 in Jakarta.

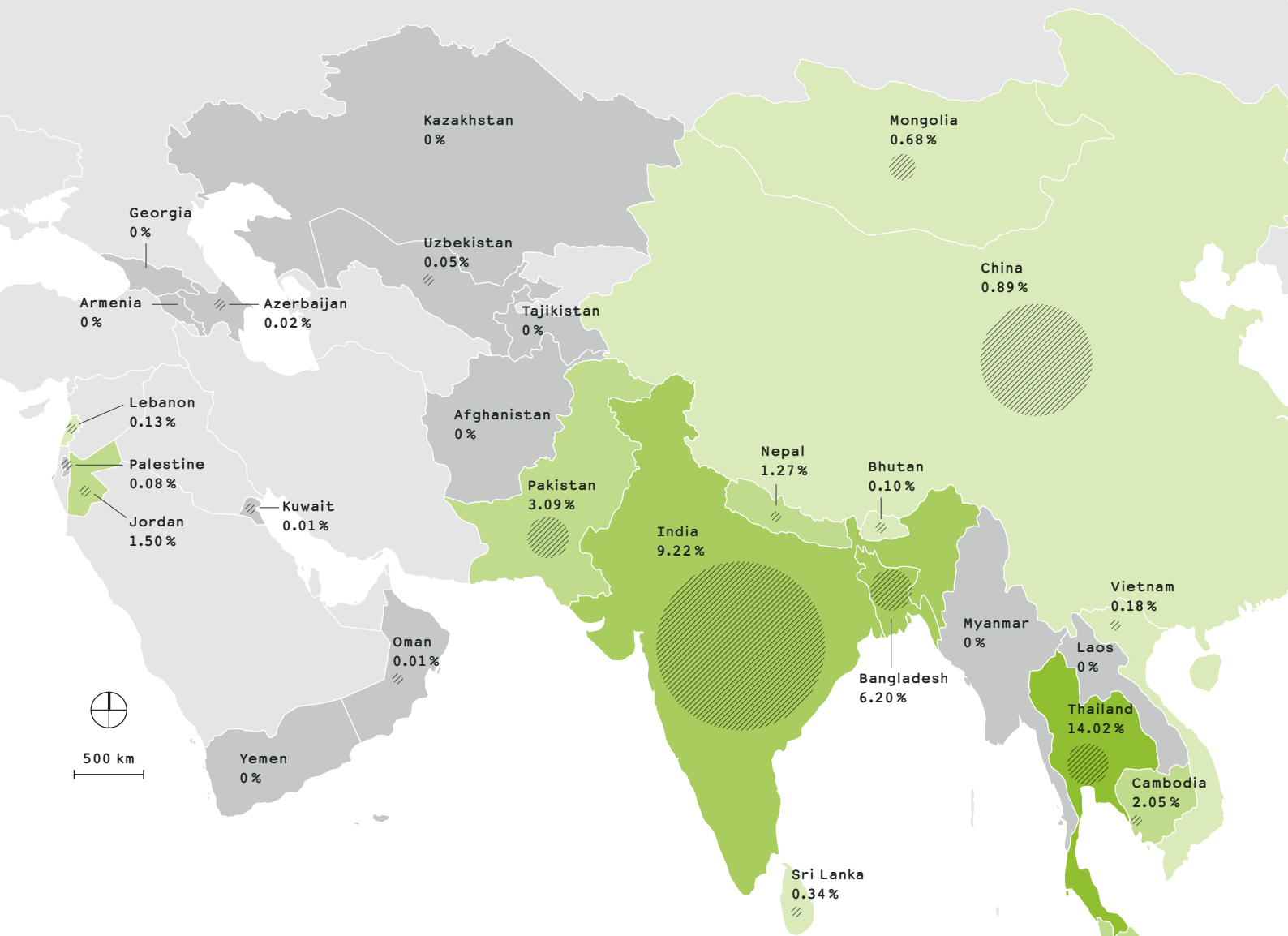
Life, accident and health insurances are the most frequent covers. What is especially lacking is protection against disasters. "There is a great demand for state intervention here, as the market does not offer the requisite products," explained Tran Dooc, Insurance Commissioner of the Philippines. How important this is was demonstrated in a tragic fashion by Typhoon Haiyan, which shortly before the conference began, caused massive devastation on the Philippines and took thousands of lives.

Left: Jonathan Batangan, General Manager of a microinsurance company in the Philippines and one of 75 speakers who shared their experience at the approximately 30 sessions of the conference.

Right: The core part of the conference is a close exchange between the insurance representatives and the regulatory authorities about future framework conditions. Richard Leftley from MicroEnsure (middle) discusses challenges with regulatory executives from Tanzania and Indonesia.

Below: Following the press conference, Commissioner Firdaus Djaelani, Director of the Financial Services Authority of Indonesia (OJK), answers the questions of media representatives.





### Microinsurance coverage in Asia and Oceania

The map displays the microinsurance coverage ratio of each country, indicating the total number of insured people as a percentage of the total population, and the absolute number of lives or properties insured. The darker colours indicate a higher coverage ratio, while the size of the grey circle within the country represents the absolute number of lives and properties covered.

Source: The landscape of microinsurance in Asia and Oceania (2013)

For further information on this issue:

Landscape studies  
[www.microinsurancelandscape.org](http://www.microinsurancelandscape.org)

Percentage of the population covered by microinsurance

- No data
- < 0.1%
- 0.1-1%
- 1-5%
- 5-10%
- >10%

Total lives and properties covered (in millions)

- 0-1m
- 1-5m
- 5-10m
- 10-100m
- >100m



### Positive experiences decisive

“The expansion of insurance to new markets not only represents a tremendous opportunity but also a tremendous responsibility,” stated Craig Churchill, Chairman of the Microinsurance Network. “It is not easy for someone to take out insurance who has never had any experience with it beforehand,” he added. People on low incomes only take out insurances when they understand how they work and what benefits they offer. It is therefore important for people to have a positive experience with the products and recognise advantages. “Needing insurance is like needing a parachute. If it isn’t there the first time, chances are great that you won’t be needing it again,” Churchill concluded. If the experiences made are not positive, insurers can easily ruin their own reputations. It can take years or even a whole generation until a new opportunity comes along. Churchill advocated the promotion of a culture for insurances. This would allow people to learn to better deal with risks.

### Improvement of framework conditions

Governments play an important role. They must guarantee a functioning regulatory framework. India and the Philippines are already relatively advanced in this respect, other countries such as Bangladesh, China, Cambodia, Nepal, Pakistan and Vietnam are catching up.

In host country Indonesia, distinct progress is evident. Shortly before the conference, the Indonesian Financial Service Authority (OJK) published its vision, the “Grand Design of Microinsurance”. One of the goals is to explain to people how finance products work and what their benefits are. “Financial literacy is important as it can accelerate people’s economic activities, which ultimately improves people’s welfare. Improving the level of financial literacy is paramount for further lifting Indonesia’s economic development,” Kornelius Simanjuntak, Chairman of Insurance Council of Indonesia (DAI), stated.



Promoting understanding of financial products

A statistic of the Indonesian Central Bank demonstrates the importance of explaining financial products to people: in 2013, roughly only 20% of the Indonesian population had access to financial services. This is not a lot in comparison to Thailand (73%), Malaysia (66%), India (35%) or the Philippines (27%).

One path towards greater financial inclusion would be innovative business models that are cost-effective and offer reliable services. However, such innovative products are not always reconcilable with regulatory frameworks. To promote the exchange of information between the regulatory authorities and microinsurance practitioners, the Microinsurance Network and the International Association of Insurance Supervisors (IAIS) together hosted the "1st Consultative Forum" at the conference. The IAIS wants to learn from the market participants and hopes they can advise on how the regulatory provisions can be improved. One thing is certain: the number of microinsurances must grow. The forum offered regulatory authorities, political decision makers and representatives from the insurance industry the opportunity of discussing new business models and their regulatory possibilities.

In 2014, we will continue our series of conferences with an event in Mexico. The tenth anniversary of the conference will be a milestone in its history. However, there is still so much to do if microinsurances are to become successful worldwide.

Conference facts and figures

The 9th International Microinsurance Conference was held from 12–14 November 2013 in the Indonesian capital of Jakarta, and consequently for the third time in Asia. Some 400 delegates from almost 60 countries attended. The conference was hosted by the Munich Re Foundation and the Microinsurance Network, with the support of the Indonesian Financial Services Authority (OJK), the Indonesian Insurance Council (DAI), the German Agency for International Cooperation (GIZ) on behalf of the German Federal Ministry for Economic Development and Cooperation (BMZ), the Georgia State University Center for the Economic Analysis of Risk (CEAR), the World Bank/IFC and the Pharm-Access Foundation.

In the large plenary hall of the conference, a representative of the Indonesian Financial Service Authority (OJK) explains how it intends to promote microinsurance in its country.



For further information on this issue:

Microinsurance Conference  
[www.microinsuranceconference.org](http://www.microinsuranceconference.org)



## Interview with Michael J. McCord — Worldwide growth in microinsurance remains on rapid expansion course



Michael J. McCord

is President of the MicroInsurance Centre. He has gained wide-ranging experience in the areas of banking, microfinance and microinsurance. As the author of numerous studies on the subject of "Microinsurances" he has gained an excellent reputation in the insurance industry.

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For further information  
on this issue:

MicroInsurance Centre  
[www.microinsurancecentre.org](http://www.microinsurancecentre.org)

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Mr. McCord, you are the main author of the first "Landscape of Microinsurance in the 100 poorest countries" study published in 2005, as well as recent studies on Africa, Latin America and the Caribbean. What, in your opinion, have been the most promising changes in the past eight years?

—

The most promising developments between 2005 and 2013 all centre around growth. The growth in the number of people covered by microinsurance has been dramatic – over 100% in Latin America and the Caribbean, and over 200% in Africa. This growth has been fuelled by significant improvements in technology, including the use of mobile telephones and a wider range of distribution channels, as well as ever growing numbers of insurers. Important is that life insurance policies coupled with loans are no longer the dominant product. This suggests that the insurers are developing their range of products further. In Africa and the Latin American countries, 4.4% and 7.8% of the population respectively have already taken out microinsurance policies, although these still are largely life and accident insurance policies. The potential still remains enormous, not only in the number of the policy holders but also in the diversity of the products on offer.

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

—

The studies mentioned before clearly show that the commercial insurance sector has a decisive influence on the market volumes. For example, although only 12% of all microinsurers are commercial insurers, they offer almost 80% of all the microinsurance policies in Africa. In the Latin American region, more than 90% of the microinsurers belong to the commercial sector. However, despite growing numbers of commercial providers, the motivation for entering this market has changed. The insurance companies apparently no longer view microinsurance so strongly under the aspect of social responsibility but rather increasingly from a business perspective. On the one hand, this is positive, but it is also reflected in restricted health insurance coverage in these regions.

Despite the impressive growth: what are still the main barriers and how have they changed over time?

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The main barrier still is distribution. Even with the wider range of distribution channels, further and considerable expansion is still required to achieve the volumes insurers need to support this business model. Increased product benefits would make the insurance policies even more attractive for the customers.

What role does the Munich Re Foundation play in overcoming these challenges?

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The foundation has made major significant contributions to this growth through the annual International Microinsurance Conference that it hosts together with the Microinsurance Network (MIN), its leadership on the MIN board, and through its role in the annual landscape studies. The foundation brings important thinkers and doers together at the conferences to help raise the level of microinsurance across the globe. The Learning Sessions are an important step towards making new insights in this area known to the public.

## Different countries — Similar challenges



The number of microinsurances is growing steadily all around the world, but the market potential has not been exhausted by far. New ideas and concepts are needed to reach larger groups of the population. Examples from Africa and Latin America illustrate the challenges facing the providers.

In Nigeria, a fast-growing and dynamic nation, more than two thirds of the more than 150 million inhabitants live below the breadline. The microinsurance potential is correspondingly large according to estimates of the National Insurance Commission (NAICOM). However, the question is how can this potential best be utilised? The 250 experts attending the “International Microinsurance Conference Learning Session Nigeria” searched for the answer.

According to a “diagnostic study” analysing microinsurances in Nigeria, financial exclusion is high in this country, and the gap between the urban and rural populations is wide. Less than one per cent of the population has insurance. “The availability of microinsurances is decisive for the transformation process which the country is undergoing,” stressed Arunma Oteh, General Director of the Nigerian stock market supervisory authority, which is responsible for supervising the finance sector.

“According to results from the diagnostic study analysing microinsurance in Nigeria, the market lacks good products and trust,” said Denis Garand, one of the world’s most experienced actuaries in the field of microinsurance. To make the products more affordable, the NIA is aiming at lowering the market entry barriers, for example by reducing capital requirements or by means of tax shields. To facilitate sales, technologies such as cell phones are to be used more frequently.

### About the Learning Session Nigeria

The conference took place at the beginning of September 2013 in the capital city, Abuja, and was organised by NAICOM together with the German Agency for International Cooperation (GIZ), Making Finance Work for Africa (MFW4A) and the Munich Re Foundation. The Nigerian Insurers Association (NIA) and the Microinsurance Network were partners of the event.

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For further information  
on this issue:

Microinsurance  
Conference  
[www.microinsurance  
conference.org](http://www.microinsurance<br/>conference.org)

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In Latin America too, the microinsurances concept has a substantial development potential, even though the 7.6% coverage rate is already almost twice as high as in Africa. This is the conclusion reached by the “The landscape of microinsurance in Latin America and the Caribbean”, presented at the end of September 2013 in Guadalajara, Mexico, on the occasion of the first Microinsurance Learning Session for Latin America and the Caribbean. The sessions were part of the annual FOROMIC Conference, the most important micro-finance conference in the region with over 1,600 delegates.

In eleven countries in this region, the number of microinsurances has risen between 2005 and 2011 by 125%, particularly in Colombia, Ecuador and Peru. However, there are also stagnating or shrinking markets such as Panama or Venezuela. Micro-insurance providers in Latin America are, above all, commercial insurers followed by cooperatives. They make use of a wide-ranging spectrum of distribution channels. However, the commission rates are in some cases extremely high. The use of new technologies such as the mobile phone could contribute significantly to cost reductions. In addition to reasonable prices for the insurance, it is important for low-income families to quickly receive financial aid in the case of a claim.

To accelerate market development in Latin America, the industry is counting on the support of the regional insurance associations. The Latin American Insurance Association (FIDES) for example, has founded a project in cooperation with five member organisations and eight insurance companies in Brazil, Colombia, Mexico and Peru, that addresses the development of more suitable products. The key, however, still lies in creating the correct incentives and building up trust, not only with the policy holders but also with the sales people.

The discussions in Nigeria and Mexico have made it clear that individual players acting alone will not succeed in facilitating access to microinsurances. Success will only be achieved in the long run through close cooperation between the regulators and the insurance industry.

Left: Arunma Oteh, General Director of the Nigerian Securities and Exchange Commission (SEC), and Fola Daniel, Head of the National Insurance Commission (NAICOM) open the conference.

Right: Representatives of the insurance associations of Brazil, Colombia, Mexico and Peru present their strategies for the expansion of microinsurance in cooperation with the Inter-American Development Bank (IADB).

Below: The interest in the subject of microinsurances was overwhelming. Numerous delegates made use of the direct dialogue with the Financial Supervisory Authorities to clarify open questions.





# Gibika — Bracing for emergencies

Our project “Gibika”, the Bengali word for livelihood, is aimed at helping people in Bangladesh to better deal with the impacts of climate change and natural disasters. Our goal is to analyse the risks posed by natural hazards and to prepare the people at risk more effectively for emergency situations.

Our partner project with the United Nation’s Institute for the Environment and Human Security in Bonn (UNU-EHS) and the International Centre for Climate Change and Development (ICCCAD), an Institute of the Independent University of Dhaka, was launched in 2013. Our aim is to help the people secure their means of subsistence in the wake of cyclones, floods and other natural disasters, supporting them to take care of themselves. Our partners have now specified six communities in which we will work in the coming five years. They all are located in different parts of the country and are exposed to many different types of risks, ensuring that the project covers the broadest possible range of risk factors.

## 1. Gabdola: recurrent floods

Gabdola is a small community lying on the banks of a river in the southernmost part of the Bagerhat District. In the past 25 years, hundreds of residents have more and more frequently had to leave their houses and repair damage due to floods. Even the newly constructed dams have not offered reliable protection against the flood waters. Houses and fields have been damaged irreparably. Gabdola exhibits a typical pattern for a low-income country with a high population pressure exposing it to repeated disasters: although the people affected are promised aid after a flood, the funds usually do not suffice to completely compensate the damage. Fates such as that of Mahmud Ali (see page 17) are not uncommon: with each new flood, the Spartan possessions of the people dwindle, pushing them towards the brink of poverty.



## 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, Southkhali Union, Sarankhola Upazila, Bagerhat District
- 2 Mazer Char, Shaplajor Union, Mathbaria Upazila, Pirozpur District
- 3 Singpur Union, Nikli Upazila, Kishoreganj District
- 4 Jatrapur Union, Kurigram Sadar Upazila, Kurigram District
- 5 Babupur, Shapahar Upazila, Naugaon District
- 6 Zamalpur, Shapahar Upazila, Naugaon District

Source: Munich Re Foundation, own blueprint 12/2013; basis for data: ICCCAD Institute, Dhaka, and UNU-EHS, Bonn



## 2. Mazer Char: soil salinity

The River Baleswar meanders strongly and changes its course from year to year, leading to the accumulation of sediments that over decades have created new settlement grounds for the island community of Mazer Char in the south of Bangladesh. The 1,000 inhabitants live mainly from fishing, agriculture and aquaculture. As Mazer Char lies close to sea level, the settlement is particularly exposed to natural hazards. Cyclones threaten during the cyclone season, torrential rain and storm damage are the result. In addition, storm floods often triggered by cyclones erode the coastlines and increase soil salinity in the interior of the island, destroying the basis for agriculture and nutrition.

## 3. Singpur: a river changes a community

The Singpur community in Kishoreganj also lies on a river that frequently changes its course and shapes the landscape in its wake. This plays a role not only in the village sites but also has a strong impact on livelihoods. The inhabitants of Singpur have already felt the effects of the river's strength. A meander cut through the community in a matter of years. The result: houses, schools, mosques, hospitals and fields were destroyed. To aggravate the situation, the village inhabitants are deeply in debt, and thus even more vulnerable. With growing money worries, the people find it increasingly difficult to get back on their feet after disasters. Their homes must be rebuilt with dwindling funds. They become more and more destabilised. A substantial loss of goods and lives is inevitable, even from minor natural events.

A farmer ploughs poor, sandy soil in Forithpur, where just a few years ago a mighty river flowed. The rivers in Bangladesh meander strongly, eroding land in some places and creating fertile new land in others.


  
**জীবিকা**  
 Gibika  
 Livelihoods

#### 4. Forithpur: new regulations for land ownership

Fluvial erosion can make a country uninhabitable in one place, while in others, the sediments can create new land to live on. In Forithpur both these processes are taking place at the same time. In 2013, five houses in the village had to be abandoned within a matter of weeks. The river had completely inundated them. At the same time, farmers on the opposite bank began to develop and cultivate the newly generated land. They improved the sandy soils and sowed seeds. In Forithpur, as in other places, grants for new land must be regulated by law. The existing regulations are no longer adequate.

#### 5. Babupur: fewer harvests, greater yields

In the late 90s, the precipitation pattern in the Naugaon district gradually began to change. The result was a year-long drought. The farmers who used to bring in two harvests a year must now forgo the second harvest. Nevertheless, the Babupur community today produces more rice than ever: drought-resistant strains of rice and efficient irrigation systems have increased the yields significantly. This example has taught us that adaptation can succeed.

#### 6. Zamalpur: mangos instead of rice

Zamalpur also lies in the Naugaon district and has been affected by the drought. However, farmers here did not succeed in adapting to the drought. The living conditions deteriorated drastically. Almost all the men moved to the capital city of Dhaka, where they work as tradesmen or ricksha drivers. More and more women are following them, finding work in one of the countless textile factories. In the meantime, many farmers in Zamalpur have abandoned their century-old rice terraces. They now are planting less sensitive mango trees, which is profitable but by far does not feed as many people as rice cultivation. As mango prices also fluctuate strongly, Zamalpur is exposed to the risk of incalculable returns.

Working together with the local people, we want to jointly develop suitable instruments for the communities. The people will learn to cope with their risks more effectively. The years of experience that the project partners have gained in the context of adaptation mechanisms bode well for the projects. Science, politics and practice interact, an important prerequisite for the success of the concepts.

Children playing happily in a slum on the outskirts of Dhaka. The city is growing rapidly. New development areas will soon force the slum dwellers out. Where they will go is uncertain.







Mahmud Ali from Gabdola has lost everything. River floods have repeatedly destroyed his house. Today his land is worthless as it is situated outside the protective dikes.

### A life with no prospects

The people in Bangladesh grow up with storms and floods and see them as part of nature. The problem is the increase in these natural hazards. Losing everything they possess time and time again wears the people down and, in the worst case, drives them into poverty. Mahmud Ali from Gabdola tells his story:

“25 years ago, I had managed with hard work to buy a house and a bit of land. My life was good. Then a storm hit and pushed the water over the dams. House and land were lost and the river widened.”

After the storm, Mahmud received money from the government and was able to buy a new house and land behind the next dike. The prices for land had risen however. There was only enough money for a smaller house with less land. Just a few years later, a second storm swept over the area and destroyed the second dam. Mahmud was again faced with ruin. “The government helped me again, but the funds were not enough to buy new land. I now live in a small hut without my own land,” he says describing his situation.

The old piece of land now lies outside the protection of the dikes and has become practically unusable. The river bed continues to widen and salt water from the sea pushes inland. Mahmud can no longer plant rice here to earn his livelihood. The next storm can seal his fate and force him into poverty.

His story shows that the current adaptation programmes are no longer adequate. Only the people whose land is protected by dams have a claim to state benefits. Owners, most of them farmers, receive no money if their land beyond the dikes falls victim to the floods. Land loses all value and is irrecoverable as soon as a dam is irreparably destroyed. In Bangladesh, the prices for the increasingly scarce, protected land behind the dikes continue to rise steadily. Not everyone can afford a new beginning in protected areas, the descent into poverty is inevitable. Owners of land behind the dikes benefit from the price increases and higher rental incomes. This drives a wedge into society.

A further problem is that the existing aid programmes focus too strongly on compensation for quantifiable losses following disasters. The social structures that change quickly with strong population pressures and migration are generally given little consideration. Bit by bit, the people affected are no longer able to secure their own livelihoods.

Mahmud is on the verge of resignation. He shrugs his shoulders and says: “In Bangladesh we’re used to constant change. We grow up with the storms. But if they increase, I don’t know how we can carry on.”

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For further information on this issue:

Resilience in Bangladesh  
[www.munichre-foundation.org/home/DisasterPrevention](http://www.munichre-foundation.org/home/DisasterPrevention)

UNU-EHS  
[www.ehs.unu.edu](http://www.ehs.unu.edu)

ICCCAD  
[centers.iub.edu.bd/icccad](http://centers.iub.edu.bd/icccad)

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Disaster prevention and resilience

## Resilience Academy – Surviving disasters and improving response capabilities

Natural disasters and climate change threaten the livelihoods of people in many regions of the world. They make successful development difficult for low-income countries, the outcome is standstill and even economic decline.

In the poorest and least prepared regions of the earth, extreme weather events such as floods and droughts are particularly dangerous. River deltas, small islands and coastal regions are today already endangered by erosion and soil salinity. However, arid lands and areas affected by permafrost melt are also exposed to risk.

Together with the people at risk we will develop possible courses of action for improved response to disasters. For this purpose we have founded the “Resilience Academies” in cooperation with the United Nation’s Institute for the Environment and Human Security in Bonn (UNU-EHS) and the International Centre for Climate Change and Development (ICCCAD), an Institute of the Independent University of Dhaka.

Together we will initiate new research projects over the next five years and will promote dialogue between the academic world, the practitioners and the politicians. The first academy took place from 15 to 21 September 2013 in Savar, Bangladesh. 38 participants from 20 countries examined the following questions: How can we improve the prospects of the people for the future? What does resilience mean for people driven from their home by climate change or who live in the slums of large cities?

The importance of answers to these questions was confirmed by the delegates from Bangladesh, Sri Lanka, China, New Zealand and other countries in numerous examples. Habitats are not only increasingly becoming unfit for agricultural use but also for human habitation. People themselves often exacerbate their situation with their own behaviour. Studies from Honduras show, for example, that the development of coastal areas for tourism and the expansion of palm oil plantations are exerting a massive influence on the water regime of the entire region. Coastal erosion and floods are the outcome.

### Recognising hazards in time

Social and ecological systems are gradually heading towards a critical tipping point. Critical developments normally evolve over longer time periods, so that early warning systems and preventative measures are good solutions. Factors such as the number of crop failures, the quality of livelihoods or increasing erosion are warning indicators. They help recognise the signs of an imminent tipping point in good time so that preventative measures can be taken. When a lot of people within a community are forced to change their means of subsistence radically or even to emigrate, this is an unmistakable warning for those who remain behind: the chances of ensuring a local supply of the bare necessities sinks rapidly.

Traditional warning systems are inadequate as they are often dimensioned for the occurrence of sudden events. They do not recognise gradual developments. For this reason they must be expanded; only then will the people at risk be in a position to take action in time. "However, classic early warning systems for floods, for example, still make a major contribution to the safety of the population, if they are set up correctly," emphasised Dr. Moises Benessene from Mozambique. Warning systems often work well when they have been developed in cooperation with the people affected and responsibility is borne at local level. "The experiences in Africa could provide helpful insights for other regions of the world," stressed the director of the meteorological institute in Mozambique attending the Resilience Academy, and added: "The South-South dialogue is important, the problems are similar in many countries."

**What is resilience?**

It is difficult to find a generally applicable definition for resilience. Key properties of resilient societies include the following:

- People are better equipped for adapting to changes if they have diverse options for taking action. Flexible possibilities for earning their living and access to capital and knowledge are required.
- Institutions under pressure are all the more capable of taking action when they are networked across hierarchies and can efficiently integrate the knowledge gained from research into the political processes.
- A society can benefit from not seeing change as a threat but rather as a chance. Multiple strategies ensure that partial losses do not affect the entire system. Further development of the society must be top priority, not just a return to stability.
- Social and economic fairness and equality are important for the people in a society. Risks are distributed more effectively and the different parts of the system can absorb adversities more easily.

Left: Clive from Kenya and Andrea from Honduras at the Resilience Academy discuss the impacts that climate change could have on ecological and social structures.

Right: Participants of the Resilience Academy examine erosion damage in the Manikganj district to the south of Dhaka. The river cuts deep gouges into the land, forcing the residents to move away.





### Social structures and migration

Migration and relocation are sometimes the only possible option when the environmental conditions grow worse. The question of whether this can be considered an emergency solution or an active adaptation measure depends on how the life of the migrants is organised in the new environment. Migrants accept the new community as a home when they are integrated into the planning processes. If social relationships cannot be formed, acceptance is difficult. A socially intact environment is a key factor.

Excursions into several exposed areas in Bangladesh showed the academy participants what resilience in daily life means. The Bhola and Balus Math slums in Dhaka were particularly interesting (see page 22). More than 4,000 people live here on the area of a football pitch. The population consists chiefly of migrants from rural areas of Bangladesh.

A mixture of push factors such as poverty, and pull factors such as better living conditions in the town, have brought them here. Unfavourable environmental conditions in their old homelands played an important role in this. Another excursion led the participants to the community of Shibaloy Upazila in the Manikganj district. This is where two major rivers meet, with the result of frequent flooding and massive erosion.

Talks with the local officials on site revealed that there is no general strategy for increasing the resilience of the people at risk. Every solution must be tailored to the respective situation. However, research and experience from other regions can help to find appropriate approaches and instruments.

A village leader in Shibaloy Upazila in the north of Dhaka explains how strongly the precipitation levels have changed in the recent past. Not long ago, flash floods swept away six houses in the village.



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For further information  
on this issue:

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Resilience Academy  
[www.munichre-  
foundation.org/home/  
DisasterPrevention](http://www.munichre-foundation.org/home/DisasterPrevention)

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UNU-EHS  
[www.ehs.unu.edu](http://www.ehs.unu.edu)

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ICCCAD  
[centers.iub.edu.bd/  
icccad/](http://centers.iub.edu.bd/icccad/)

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# Resilience Academy participants in discussion



Discussions regularly take place on the fringe of the workshops. Young researchers from Bangladesh, China, England and Colombia talk about how resilience is understood in their own country.

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For further information  
on this issue:

Resilience in Bangladesh  
[www.munichre-  
foundation.org/home/  
DisasterPrevention](http://www.munichre-foundation.org/home/DisasterPrevention)

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David, resilience is becoming a buzz word in social and environmental research. Is social vulnerability being neglected?

—  
David Lewis: If this change really is taking place, the reason could be that resilience offers a more positive and holistic perspective. This approach allows us to judge more effectively how changes in our society affect people's means of subsistence and consequently change their resilience.

What does resilience actually mean?

—  
David Lewis: We were discussing that at the academy for a whole week! I think, resilience must be treated as a concept. We apply it for different questions: what possibilities and resources do people, systems or organisations have for coping with changes from the outside? What kind of reaction and buffer capabilities do they possess?

Jixia Liu: It's completely different in China. In this respect we are working within very narrow confines. A central issue for our Chinese researchers, for example, is to find out how the ecological framework conditions for smallholder farmers can be improved. However, it would actually be important to examine all facets of sustainability, in other words, to do research on social resilience as well.

Tom, what do you think? You have worked in England and Bangladesh in the Ministry for the Environment and you know the north and south perspectives.

—  
Tom Tanner: I'm happy that we have the academy and am thrilled with the diversity of perspectives and experiences of the participants. This knowledge from all over the world will certainly advance resilience research. Bangladesh offers the perfect background for our discussions: population pressure meets natural hazards, which are exacerbated even further by climate change. The risks here are unavoidable and visible to all.

That doesn't sound easy. Is a solution at all possible?

—  
Diana Contreras: We are meeting with increasing challenges, but today we also have better tools, such as Geographic Information Systems (GIS). They can provide us with valid data on spatial indicators, for all aspects: social, economic, cultural or institutional. They collectively allow us to depict the resilience of a community or region or even of a whole country.

That sounds complicated, can you give us an example?

—  
Diana Contreras: Today we can map out how many flood protection facilities exist in any particular region. If we then superimpose the population density over this map as an additional layer of information, we can easily recognize gaps in the system. GIS visualises these topics and makes them concrete and tangible for us.

Tom, where in your opinion are the major hotspots in Bangladesh?

—  
Tom Tanner: Bangladesh is an incredible paradox. It is at the mercy of floods, droughts, rising sea levels and cyclones. Millions of inhabitants also live in poverty. In addition to this, there is corruption and political instability. Nevertheless, the country is unbelievably adaptive and versatile. Like no other country, it has made enormous progress in combating poverty, in education and in its health system. The people here are used to adapting and seeing change as an opportunity.

Ina Islam: I can only agree. This is a lesson the world can learn from Bangladesh. Even though the country is exposed to so many risks, it does not come to a standstill. The communities and government take an active approach to adaptation processes.

## Daily life in Bohla slum — Surviving in a strong community

Several thousand people live on a surface area the size of a football pitch in the Bohla slum in Dhaka. Many of them have a regular job which allows them to just about get by. However, it does not provide them with enough to plan for a sustainable future.

Hasina smiles and proudly shows us her home. We are standing in a corrugated hut in Dhaka, the fastest growing city in the world. The 24-year old woman lives here with her husband and two small children – on 12 square metres. Next door on the same floor-space live the grandparents and Hasina's brothers, 18 and 33 years of age.

We are visiting the family with 15 participants of the Resilience Academy and want to find out how people live under these difficult conditions. "How does it feel? Living in such a narrow space?" the young researchers ask. "Good," replies Hasina, "we are a strong community and feel safe, even though the land doesn't belong to us. The neighbours are nice and help each other."

Hasina knows no other home, she was born in this hut in the slum. The name of the slum hails from one of the worst cyclones of the region: on 12 November 1970, Cyclone Bohla devastated the coastal region of the country which was then called East Pakistan. More than three million people were affected, many more than 300,000 thousand lost their lives. Those strong enough to flee, moved away. So did Hasina's parents who settled on a back-fill embankment along the river in Dhaka with friends from coastal villages. Today several thousand people live in Bohla Slum.



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For further information  
on this issue:

Resilience in Bangladesh  
[www.munichre-  
foundation.org/home/  
DisasterPrevention](http://www.munichre-foundation.org/home/DisasterPrevention)

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Left: Resilience Academy participants visit the Bohla slum. In conversations with the residents, they want to find out more about how people live here and where the greatest problems lie.

Right: Aisha is the wife of a slum leader. She has founded a savings community for 100 women. Their money is managed safely and reliably and put aside for times of need.

#### Daily life in the slum

Hasina works 12 hours a day in a clothing factory – sometimes even longer. Her day begins at 4.30 a.m. to give her time to prepare food before she goes to work. Then she takes her sons to school. She does not get home before nine in the evening. She likes to work late into the evening as this gives her extra pay. Hasina earns the equivalent of €45 a month and pays €15 for rent. Whenever there is heavy rain, water drops from the roof. “When that happens we sit in a corner, then it’s alright,” she says modestly. Electricity and water are not expensive, together they cost roughly two euros a month. For school money the small family needs one euro a month and for food approximately two euros a day. Without the income of her husband who works as a ricksha driver, the family could not survive. And not if Hasina were sick for longer than four weeks either. “Then I would lose my job and we wouldn’t stand a chance.”

Bohla slum is regularly flooded, the worst time was in 1998. “The water was metres deep for weeks. We had to move into a school. When we came back, everything was destroyed. A difficult new beginning,” says Hasina reflectively.

#### Microinsurance in the slum

The door opens: a slight woman in a pink sari enters the room. It is Aisha, Hasina’s older sister. She is married to one of the leading men in the slum and now takes care of the women in the neighbourhood. “It often happens here that women are left by their husbands. Many of them have children and are suddenly faced with ruin,” she says disapprovingly. Aisha has therefore founded the Women’s Saving Society – a self-help group that is organised as a saving community for women. Every member pays the equivalent of one US dollar into a bank account every month. “We have 100 members, our capital is growing strongly,” says Aisha proudly. If women have problems or are abandoned, the community helps them financially. “Otherwise, they would have to go to a money lender.” In the long view this would mean certain ruin due to the high interest rates.

Preparations for crises must also be made. The saving community therefore turns out to be a micro-insurance project. Four elected women are responsible for the just distribution of the funds and for capital preservation. “We want our money to grow,” Aisha assures us, “and transparency is the top priority.”

The conversations in the slums have shown how important the security of their income is for the people here. Only in this way can the children’s school education be financed, a prerequisite for sustainable development. We ask Hasina if she has a message for the politicians in her country. “We’re afraid that we will one day have to give up our homes in Bohla. The town is growing so quickly and living space is growing scarce. Give us land rights, then we can build up a safe existence,” she appeals to the responsible parties.

# RISK Award – Protection for vulnerable people

The RISK Award supports innovative projects for disaster prevention. Its current focus: people in emergency situations during natural disasters.

When disasters hit, it is of vital importance that the evacuation measures drawn up by emergency response planning are effective and actually reach all the people at risk. This applies in particular for the most vulnerable members of society who are at the greatest risk due to disablement, age, communication problems, poverty, for religious reasons or due to gender discrimination. They often run the risk of being neglected during planning and in the worst case are left without defence in the face of a disaster.

## Vulnerable people in emergencies – a topic for the RISK Award

This is where the RISK Award 2014 ties in. The prize is awarded every two years by the Munich Re Foundation, the UN Secretary of the International Strategy for Disaster Reduction (UNISDR) and the Global Risk Forum (GRF).

The second RISK Award was announced in May 2013 in Geneva at the fourth Global Platform for Disaster Risk Reduction. The host for the 3,500 participants was UNISDR. The platform's motto: "Disaster emergency – Resilience for the most vulnerable". The award, which comes with €100,000 prize money, will be bestowed on an exemplary project that concentrates on the most vulnerable members of society.

During the conference in Geneva, the importance of this aspect became clear: at the same time the conference was taking place, a tornado was raging through the US state of Oklahoma. With peak velocities of up to 300 kilometres an hour, the storm swept through the town of Moore in the south of Oklahoma City on 21 May 2013. It left behind a trail of destruction and killed 24 people, many of them children who died in the two completely destroyed primary schools.

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For further information on this issue:

RISK Award  
[www.risk-award.org](http://www.risk-award.org)

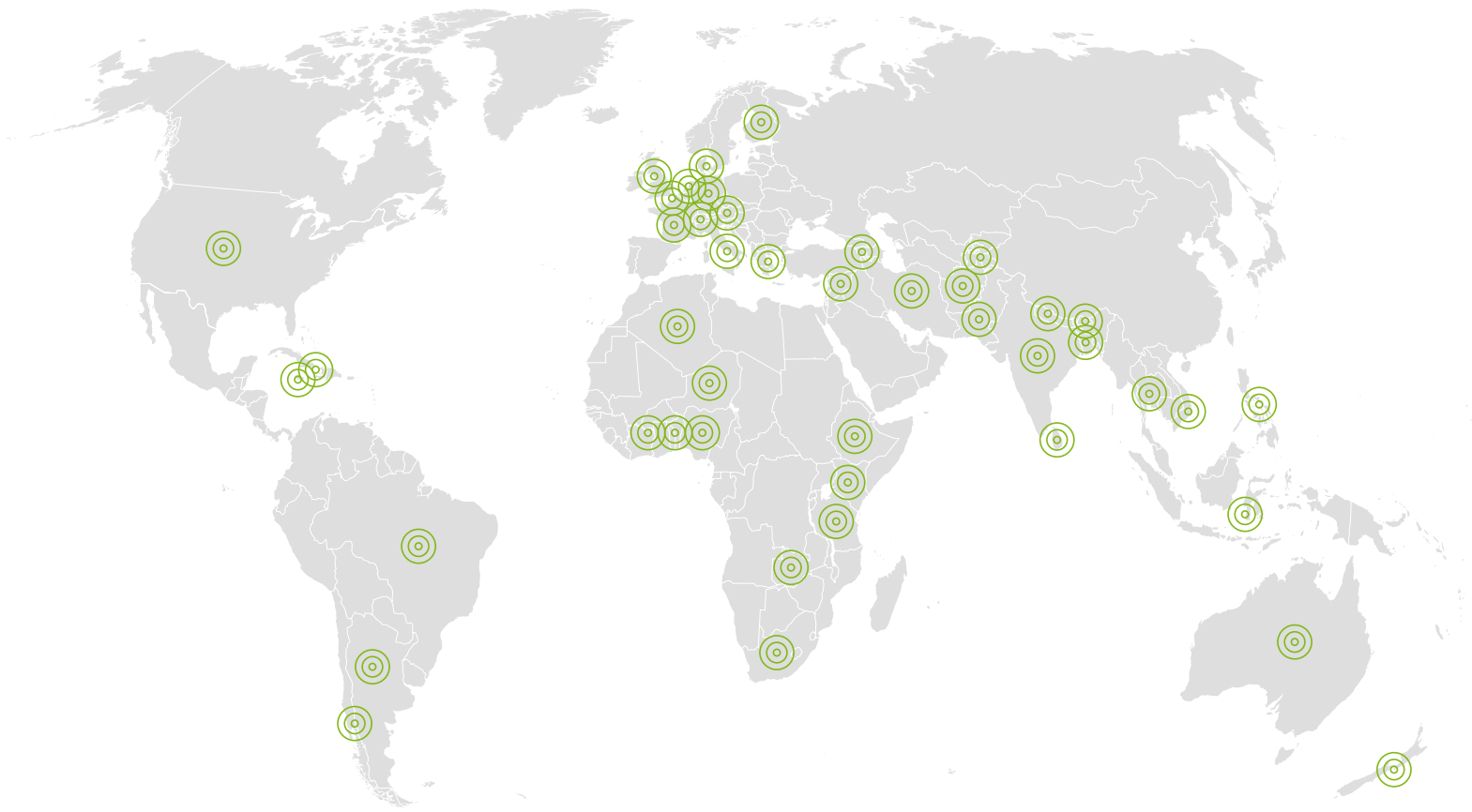
Global Risk Forum  
[www.idrc.info](http://www.idrc.info)

UN Office for  
Disaster Risk Reduction  
[www.unisdr.org](http://www.unisdr.org)

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Thomas Loster (left) and Margareta Wahlström (2nd from right) during the closing ceremony of the fourth Global Platform for Disaster Risk Reduction in Geneva at which the topic of the second RISK Award was announced.





### Improved protection during natural disasters

77 organisations from 44 countries have applied for the second RISK Award. The project proposals range from safer primary schools and the inclusion of special-needs citizens in evacuation plans to system ideas at national level. The winner is selected by an international jury and made known in August 2014.

Source: Munich Re Foundation, own blueprint 01/2014

The Oklahoma tornado exposed a weak point in the risk management – and this in one of the most highly developed countries in the world. Although alarms had been sounded as early as possible, few courses of action were open to the people affected. This is all the more tragic as the people living in the USA's infamous "Tornado Alley" are frequently hit by tornadoes. Nevertheless, there were still not enough shelters to accommodate people fleeing from the storm.

### Project proposals from numerous countries

The closing date for applications for the current RISK Award was at the end of 2013. The foundation received 77 project proposals from 44 countries. The wide range of applications again underpins the importance of the prize.

### International Disaster and Risk Conference (IDRC)

Every two years, the Global Risk Forum in Davos organises a conference on disaster management and prevention. The International Disaster and Risk Conference (IDRC) offers its more than 1000 delegates a platform for dialogue. Networks are formed, experiences exchanged. The IDRC 2014 will take place in August. We use the conference as an opportunity to announce the winner of the RISK Award 2014.

[www.idrc.info](http://www.idrc.info)



Wind turbines are more than 100 metres tall and often installed in exposed areas. In many places they have a massive impact on the landscape. The photograph shows a wind farm in Lagrono in Spain. The country is a pioneer and produces ten per cent of its electricity with wind energy.

Right: Citizens from Graveley to the north of London demonstrate against a wind power plant. Protests of this kind are widespread across Europe. Society plays a key role in the implementation of the energy turnaround.





# Welcome to the Anthropocene



In 2011, the German Advisory Council on Global Change (WBGU) presented an extensive study entitled "World in transition – A social contract for sustainability". In this study, the WBGU examines courses that can be taken towards a low-impact and sustainable global economy and society.

Dirk Messner



Dirk Messner  
is Director of the German Institute of Development  
Politics and Co-Chair of the WBGU.

The report\* has attracted considerable interest at both national and international level. The costs of restructuring, of the technological scope of action and of the political barriers have since then been widely discussed. In addition to the feasibility issues, two further fundamental questions have repeatedly been raised:

1. Are the warnings against the repercussions of global warming and climate change, on which the pleas for a comprehensive sustainability transformation are based, really not exaggerated?

The WBGU answer: The natural sciences have unfortunately not given the all clear. On the contrary, the view that humans are the strongest geological factor in the earth system is becoming more and more widely accepted. Existing production and consumption patterns could lead the earth system as a whole onto a new course in this century, with incalculable results and risks for many future generations of humans. The idea that the earth is driven by physical laws over which we humans have little or no influence belongs to the past.

Humanity is becoming the architect and designer of the earth system – for better or worse. It must therefore accept responsibility for the stability of the earth system and learn to stabilise and protect the global ecological public goods such as the atmosphere, the seas, the forests, the global ice masses, hydrological cycles and agriculturally used land. Welcome to the Anthropocene – the era of the humans.

2. Does the concept of the “Great Transformation” reflect a yearning for a rule of experts? Does the WBGU concept mean sacrificing the freedom of individual life models on the altar of ecological dictatorship?

Our answer: Science should not prescribe goals for society. However, it must draw attention to the limitations of the earth system and the risks of global warming. The relationships uncovered by science must be responsibly communicated to society. Science can also contribute to the illumination of paths towards sustainability, to making alternative options visible and to estimating their costs – in other words to exploring what our future could look like. The social sciences should also participate in the social discourse on the normative foundations of a sustainability culture. Ultimately, in democratic societies, it is the citizens who decide how they want to respond to the insights and options for taking action that science can provide. The WBGU is consequently not dreaming of a republic of experts but rather, and indeed, of a democratic knowledge society. This society takes note of scientific insights and weighs them up to make responsible decisions that not only take present interests but also the interests of future generations into consideration.

The acceptance of limitations, in the case of sustainability the limitations of the earth system, in no way questions the liberal constitution. People have defined other types of limitations in the course of their civilisation history to organise people living together in societies: social rights and standards set the boundaries within which the economy can develop without people being exploited; human rights define rights and obligations in the social interaction between humans; the Law of Nations regulates what is acceptable in the interaction between states. The time has come now to accept the physical limitations of the earth system in order to secure people’s means of subsistence in the long term. This view stands squarely in the tradition of Kant, for whom freedom did not mean unregulated action but “action for good reason”.

For further information on this issue:

\*WBGU (2011): *World in Transition – A Social Contract for Sustainability*, Berlin: WBGU Publishing House  
[www.wbgu.de/en](http://www.wbgu.de/en)



Smog in Tianjin in January 2013. Thick smog is today often normality in Chinese cities. Apart from the adverse health effects, this also leads to road and air traffic congestion. With emissions to the order of ten billion metric tonnes a year, China is by far the largest CO<sub>2</sub> emitter in the world.





2013 dialogue forums

## The (im)mobile society – Ready for the future?

We must slow climate change. The German Advisory Council on Global Change (WBGU) is working towards a new climate-friendly and economically sustainable mindset. However, without a fundamental change of life style, we will not achieve this goal.

But is society ready to support such a radical step? In our 2013 dialogue forums, well-known politicians and researchers searched for answers to these questions and outlined perspectives for the future.

Our traditional global economy model, based on fossil fuels, was found to be untenable by the WBGU in its study published in 2011. It threatens the stability of the climate system and consequently future generations' means of subsistence. At the opening forum 2013, Dirk Messner, who as Deputy Chairman of the WBGU made a significant contribution to the report, stated his position: "We need a transition to a model of prosperity that respects the limitations of the earth system." The CO<sub>2</sub> emissions must already sink significantly over the next two decades. The atmosphere is otherwise in danger of warming by more than two degrees Celsius compared to pre-industrial levels – with grave implications for mankind and the global ecosystem.

To avoid a climate collapse, the human race may only emit 750 gigatonnes of CO<sub>2</sub> by 2050. Justly distributed, this corresponds to approximately 2.5 metric tonnes per inhabitant and year. However, in reality things are quite different: in 2012 alone, the corresponding figure was 4.5 tonnes of CO<sub>2</sub>, in the USA it was almost 17 tonnes, in Germany just over 9 tonnes and in China just under 6 tonnes. In India, only 1.5 tonnes were emitted per person.

Ernst Rauch, Head of the Corporate Climate Centre of Munich Re, described in his keynote address what lies ahead for us if warming continues at the present rate: "In the past three decades, we have observed that weather disasters have increased approximately by a factor of 2.5, geophysical events such as earthquakes, in contrast, have largely remained stable. For us, this is a sign that weather patterns have taken a negative turn." Nevertheless, 20 world climate conferences have been struggling since 1995 to achieve a globally binding and effective reduction in emissions. "Looking at developments over recent years, it must be feared that climate change will ultimately get the better of us and that all the efforts to reduce CO<sub>2</sub> emissions will have been just a drop in the ocean," was Rauch's conclusion.

#### What can we do?

Even though time is short, we must not act blindly and simply do anything just for the sake of doing something, says Gesine Schwan, President of the Humboldt Viadrina School of Governance. "We will not make better use of the short time available by launching ourselves into frenetic action," she is convinced. What is needed, in her opinion, is concentration on what is essential and on the ability of society to communicate and cooperate. "We will never achieve this transformation with technological means alone." She is also sceptical of unilateralist action by individual groups, which would only serve to push consensus on future developments into the distant future.

Ernst Rauch agreed: "We are not an island and should seek solutions in cooperation with our European neighbours." Although the energy turnaround has been launched, Germany, accounting for three per cent of global CO<sub>2</sub> emissions, will not be able to reach the two-degrees goal alone. "However, we are a role model, and the world is watching us and how we meet this challenge," he is convinced.

#### Growth and abstinence?

Angelika Zahrnt, Honorary Chairperson of BUND (Friends of the Earth Germany), considers the growth provision of political decisions a major stumbling block for the great transformation called for by the WBGU. "In highly developed industrial countries, economic growth must not have priority, but rather the respect of ecological limitations." The technical developments in renewables give rise to optimism. However, not only is the changeover to sustainable energy forms important, but also the general reduction of energy consumption by means of technical progress or by abstinence.

The past has shown that mankind is quite capable of changing its standards, values and principles. "We have learned to respect human rights and the social rights of working people. We now must define similar limitations from the perspective of the earth system," urged climate researcher Messner. Once these limitations have been acknowledged, mankind's creativity and fantasy will ensure that the right solutions are found. Science can provide the framework for a target system. Still, in the final analysis, society itself must decide on the direction it wants to take.

Also with regard to planning an efficient and ecological traffic system, the search for solutions is proving difficult. Not only must technological hurdles be surmounted, we all must also part with old and comfortable ways to which we have grown accustomed. "It will take many different instruments to compel people to change their means of transport," said Susanne Böhler-Baedeker summing up her opinion. As alternative driving systems such as the electrical motor or the fuel cell will only help in the long term, we need innovation and a customer offensive in public transport. "If we want to limit global warming to two degrees Celsius by 2030, traffic-induced emissions must be reduced by a factor of three," explained the Co-Director of the Research Group Energy, Transport and Climate Policy at the Wuppertal Institute.



Left: Gesine Schwan believes in dialogue and understanding. She explained that the energy turnaround in Europe can only succeed on the basis of wide-ranging consensus in all the European countries.

Right: Dirk Messner from WBGU speaks of a dilemma: although dialogue and consensus are basic prerequisites for the success of the energy turnaround, this will require a lot of time which, considering the rapid advance of climate change, we do not have.



So what can one do as an individual to help curb climate change? "It sounds paradoxical, but one person cannot only do a lot, but also very little," explained freelance journalist and author Toralf Staud. To preserve resources, people can save electricity, for example, or refrain from taking flights or reduce their meat consumption. "However, the immediate advantage for the climate is marginal," said Staud. The main problem in climate change is that we are faced with a non-personalised opponent, and this does not impinge acutely enough on our moral sensibilities. In addition to this, the change is taking place at too moderate a pace to be perceived as a dramatic occurrence. Or, in the words of Harvard psychologist Daniel Gilbert: "Global warming is a lethal threat precisely because it does not trigger an alarm in the human brain. It allows us to sleep calmly although our bed is already being consumed by flames."

While the decision to phase out nuclear energy has definitively been taken in Germany, opinions differ on the issue of whether the wind power stations and power transmission lines required to compensate for the discontinued nuclear power should be built or not. The citizens affected are offering fierce resistance, a development that comes as no surprise to the former German Minister for the Environment Klaus Töpfer. The introduction of the "Green Dot" package recycling scheme and of a waste recycling system under his management also initially met with widespread scepticism. "Protest is not a negative thing as such," is the lesson drawn by the Executive Director of the German Institute for Advanced Sustainability Studies (IASS). His recipe for dealing with it: "Where there is resistance, you must either have good arguments to convince people, or you must see to it that the citizens are involved at the earliest stage possible."

As in earlier years, interest in the dialogue forums was very strong. Subsequent to the panel discussions, the audience of approximately 180 guests is given the opportunity of asking the experts questions and entering into dialogue with them.



Klaus Töpfer, chairman of the “Ethics Commission on Safe Energy Supply” spoke in favour of civic participation. The energy turnaround, in his opinion, can only succeed if people are integrated into the decision-making processes at an early stage.



Even in the case of the energy turnaround, resistance against certain plans can also provoke reflection on alternative solutions. The discussion about the length and number of new power transmission lines, for example, has already led to a more intense discussion of the idea of decentralised energy supply. Töpfer warned against burying heads in the sand and hoping for a suitable technology in the distant future: “We tend to act by the motto: to avoid missing out on the improvements of tomorrow, we refrain from doing what is right today, which means that the ills of yesterday will persist. This must not happen,” he insisted.

### Pulling together

To ensure that the great transformation of society succeeds, it will be necessary to bring social groups with a low standard of education on board and give them the opportunity of social mobility. Unfortunately, in recent years, exactly the opposite has been practised, explained Jutta Allmendinger, President of the Berlin Social Research Center (WZB). “Inequality is becoming firmly established, particularly in the lower classes and in all dimensions of social mobility, be it in education, profession, income or in the selection of a partner.” As the reasons for this she named the education system, which already predetermines the path that children will take at an early age, and a labour market that is becoming increasingly demanding. In earlier times, young people with secondary and intermediate school-leaving qualifications still had good chances of finding a job. Today there is a lack of such positions as we live in a globalised world and many less-skilled jobs are being offshored to other countries to cut costs.

“I am saddened by the fact that, in a country as rich as Germany, it is not possible to give all children equal opportunities,” added Sebastian Gallander, Social Mobility Project Manager at the New Responsibility Foundation of Berlin. He criticised the fact that 29% of all children and young people in Germany grow up in underprivileged circumstances. His remedy: just as German football forged its way into the international vanguard with high investments in its youth training work, the expenditure for the education system should also be significantly increased.

During the five dialogue forum evenings in 2013 one thing became clear: climate change cannot be avoided just by adjusting a few parameters. To achieve a sustainable reduction of CO<sub>2</sub> emissions, we must take countermeasures at the most diverse levels. Natural scientific and technical solutions alone will not halt global warming. The key to human sustainability actually lies in changing life style and in a culture of cooperation. There is no lack of options and recommendations, it is implementation that is the weak point.



A detailed summary of the 2013 dialogue forums can be found on our website along with the accompanying “Positions” publication. It is available from the foundation as a PDF file or as a printed brochure.

Dialogue forums  
[www.munichre-foundation.org/home/DialogueForums](http://www.munichre-foundation.org/home/DialogueForums)

# Water for life – Fog nets in Morocco and Tanzania



For more than six years now, the Munich Re Foundation has been supporting projects harvesting drinking water from fog and dew. Following a first field project in Eritrea, we have been supporting the installation of fog collectors in the Anti-Atlas Mountains of Morocco since 2011. Work is difficult in this region – but it is definitely worthwhile. Last year we launched another project in Tanzania.

For people living in arid but fog-intensive regions of the world, the fog nets bring a substantial improvement in life quality: they secure drinking water supplies. The villagers living at the foot of the 1,225-metre Mount Boutmezguida in the Moroccan Anti-Atlas Mountains, where the foundation has been supporting a fog net project since 2011, will also benefit from the new drinking water supplies in the future. The teams of our Moroccan partner organisation Dar Si-Hmad found themselves repeatedly confronted by new challenges during their work. The helpers had to transport the requisite material over steep and narrow paths to the summit of the mountain where they installed the anchors and hoisted the nets. Many kilometres of deep trenches were chiselled into the rock-hard, dry ground. Now new water pipelines lead down into the valley. To store the water, the team has built a large water tank on the mountain top and also repaired an old one.

The workers met with the limits of technology and nature again and again, but after two years of hard work, the project is nearing completion. If everything goes according to plan, the water can begin to flow in late spring 2014. Six hundred square metres of fog nets will then milk the air humidity and supply three villages with drinking water by means of the newly constructed pipeline and storage system. The villagers are delighted: women and girls had previously spent up to three and a half hours daily collecting drinking water from the sole well in the region.

## Greater storage capacity required

As the existing water cistern will not be large enough in the long run, a second tank with a holding capacity of 250 cubic metres will be built. The project leaders must also devise the best method for mineralising the fog water after harvesting. A lack of minerals in drinking water can pose a health risk over a longer period of time. Before the water can begin to pour forth from the taps in the houses, further issues must be clarified: How can adequate fees be imposed and what will happen with the waste water? Project leader Jamila Bargach has outlined a research field in collaboration with the University of Colorado to find the answers as quickly as possible.

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For further information  
on this issue:

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Fog net projects  
[www.munichre-foundation.org/home/Water/Fognets](http://www.munichre-foundation.org/home/Water/Fognets)

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Dar Si-Hmad  
[www.darsihmad.org](http://www.darsihmad.org)

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p(e)d world  
[www.ped-world.org](http://www.ped-world.org)

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The newly formed water committees are responsible for water management in the villages, linking the project officials and the village populations, and providing help if problems with the water supply arise. The question of paying for the drinking water is also being discussed with the committees. A prepaid system that could be processed through mobile telephone networks is currently being tested.

There is still a lot to do until the project is finally up and running in sustainable operation. Not only the people in Morocco will benefit from the success of the project, the extensive experience gained during the construction phase and operation can be applied to many fog net projects all around the world.

**Left:** In February, heavy fogs regularly roll across the crests of the Anti-Atlas Mountains. Measurements have shown that as much as 20 litres of drinking water can be harvested here daily per square metre of fog net.

**Below:** Staff of the Dar Si-Hmad aid organisation install the fog nets on Mount Boutmezguida in the Anti-Atlas Mountain range in Morocco. Their purpose is to supply three villages and schools in the valley with drinking water.

### New project in Tanzania

Rain is rare in the highlands of Babati in the north of Tanzania and in Singida in the centre of the country. However, thick fog often forms at night and in the early hours of the morning. The German organisation p(e)d world, winner of our last call for proposals for fog nets, has been experimenting with test collectors here for years. The results are very promising: one square metre of fog net can harvest an average of five to ten litres of drinking water daily, and on peak days as many as 20 litres. In November 2013, p(e)d world began the construction of two large double-net collectors with our support, each spanning a surface area of 80 square metres. The fog nets will improve water supplies for the 600 pupils of a primary school in the village of Quameyu in Babati and relieve the girls of their water-collecting duties. In Tanzania, Morocco and many other African countries, it is they who are responsible for fetching water, even in the schools. Every day, during school hours, the girls in Quameyu must collect water from the well three kilometres away from the village. This not only takes a long time, the water is also often muddy and contaminated by bacteria, and must be boiled before use.

Our project in the Singida region of Central Tanzania will begin in 2014. Seven net collectors will be built here to supply four villages and two schools. Local organisations and the village residents' committees will be closely involved in the planning measures. This is particularly important to ensure the maintenance of the project and also, ultimately, its sustainability. At present, our project partners are training the people in the villages for the coming tasks. We are pleased to be able to support the p(e)d world project and make a contribution to improving living conditions.



# Fog net technology 2.0 – The making of a highland laboratory

What happens if large fog collectors are unable to withstand the strong winds in the mountains? Or if the supporting structures buckle and the nets tear or bulge so strongly in the wind that the water harvested can no longer flow into the collecting troughs?

The fog collectors that were originally developed by the Canadian organisation FogQuest and set up in a number of countries have rendered valuable service in recent decades. However, in the final analysis, the 40 square metres nets have proven to be too large and unstable for such regions, in which the wind rages in gusts and speeds of up to 120 kilometres an hour. The result: the nets tear in from the sides and quickly become useless. Some project organisers reacted by reducing the size of the nets, as it was the case in our project in Morocco.

## A new dynamic fog collector

Since spring 2012, the Munich industrial designer Peter Trautwein has been working on a new, dynamic fog collector in collaboration with the WaterFoundation Ebenhausen. To reduce wind-pressure loads, he decreased the size of the “Mockup” prototype net to only 7.4 square metres and revised the structural calculations.

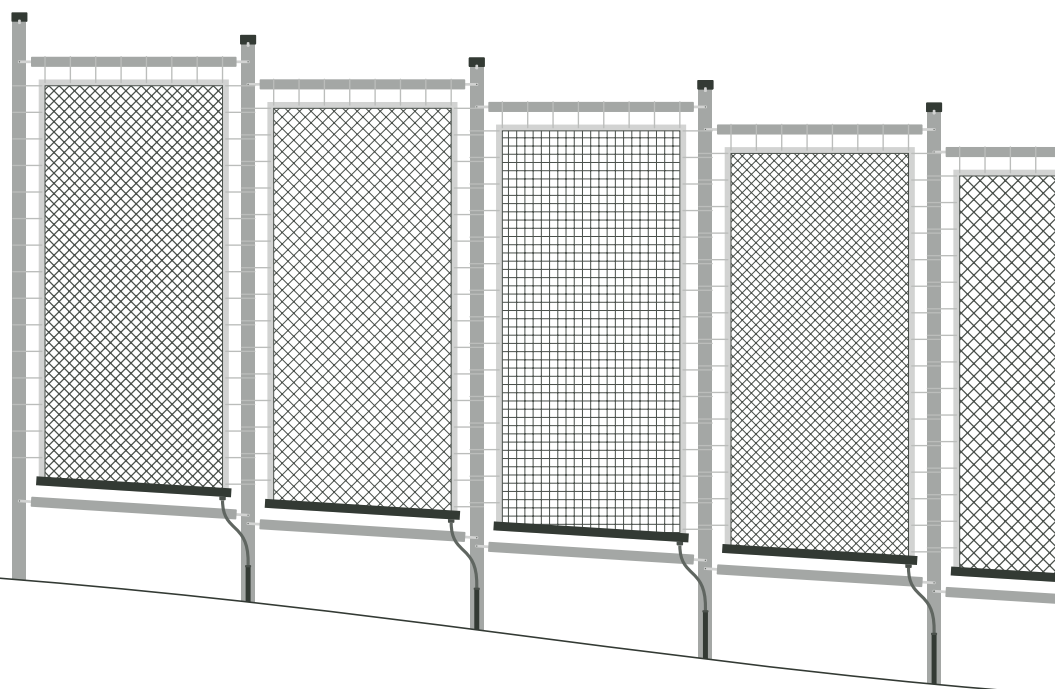
He also improved the attachment anchors: rubber expanders and flexible PVC profiles allow elastic suspension of the nets. Moreover, the constructions are now resistant to UV rays and are weather resistant, so that they no longer age prematurely due to sun and wind.

For test purposes, Trautwein set up his new fog collectors in the autumn of 2013 on an open space belonging to the university of the German Bundeswehr in Munich. Their functionality and weather resistance are being tested under real conditions. The development costs for the “Mockup” were borne by the Munich Re Foundation.

## Fog net technology 2.0

Peter Trautwein, a Munich industrial designer with the WaterFoundation Ebenhausen, has constructed new fog nets. They can generate more drinking water than the nets used so far across the world, and are more stable in strong winds. Starting in 2014, six different types of nets will be tested parallel to each other for stability and yield in the Moroccan highlands.

Source: Munich Re Foundation, own blueprint 12/2013







Left: The new collectors are characterised by sturdy frames and elastic rubber expanders, which are more resistant to storms. The photograph was taken during installation work in November 2013.

Right: Implementation of the plans for new fog nets in Morocco succeeded in November 2013. Drinking water capture from six different kinds of nets is scientifically monitored and evaluated by the TU Munich.

### Highland laboratory fog nets

In parallel, a further, also newly developed, large-scale collector will be tested for efficiency and stability under real-life conditions. Installation has already been completed. The project area is the fog net park on Mount Boutmezguida run by our partner organisation Dar Si-Hmad in Morocco. However, the test collector is just the beginning; a highland laboratory for fog net technology will ultimately be built up here. Six different net fabrics will be suspended beside each other and tested for suitability. In addition, the testers will turn their attention to the efficiency of the different types of fabric by comparing the water yield with the results of conventional fog nets. The Technical University (TU) of Munich is assisting the project with scientific work. All the stakeholders are looking forward to the first results when the next fog season begins.

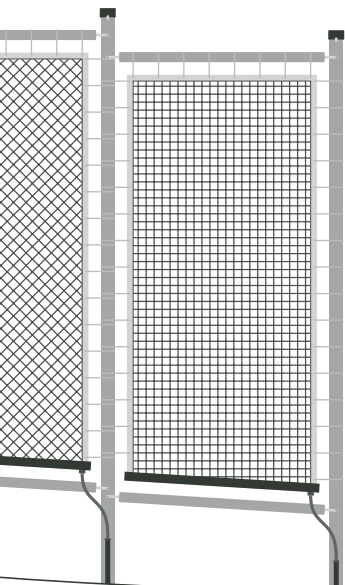
### Fog net technology 2.0

If the new fog net technology can be developed further successfully, we would like to expand the project area in Morocco into an international pilot project for harvesting drinking water, and demonstrate how this technology could serve as a global precedent. The utilisation potential is enormous. Many, mostly low-income, people live in arid regions of the world that are difficult to reach but have a lot of fog. The improvement of their living conditions is our driving force. The results so far prove that our efforts have been worth it.

For further information on this issue:

Fog net projects  
[www.munichre-foundation.org/home/Water/Fognets](http://www.munichre-foundation.org/home/Water/Fognets)

WaterFoundation  
[www.wasserstiftung.de/en](http://www.wasserstiftung.de/en)







Typhoon Haiyan left a trail of destruction in its wake. Many people lost their houses. Only a few buildings in the most strongly affected areas were able to withstand the storm.

Water – Resource and risk

## Typhoon Haiyan devastates the Philippines

Haiyan was one of the most powerful typhoons in history. With wind speeds of over 300 kilometres per hour, it swept over the Philippines in early November 2013 leaving a trail of destruction in its wake. Thousands died, several million lost their homes.

When the storm had passed, the provincial capital Tacloban had been reduced to a field of rubble. The SOS Children’s Village on the outskirts of the city was also severely impacted. When Haiyan hit the town, many people took refuge in the village. Director Oscar Garol described the buildings as heavily damaged, but was relieved that there had been no fatalities – in contrast to the thousands of victims in the rest of the country.

As the houses in the SOS compound had not collapsed, more and more residents in the area sought shelter in the village after the disaster. People who had lost everything hoped for help. Emily Torculas, director of a more remote children’s village, spoke of a “Noah’s Ark” in the midst of the devastation.

### Fast response of emergency relief services

Food, water, clothing and medicine were the most urgently required supplies. Large shipments were sent from the SOS location at Cebu on the neighbouring island where, fortunately, the infrastructure was still largely intact and the helpers were able to organise the most important supplies. At the end of November 2013, an initial number of 600 families received support in the SOS Children’s

Village while emergency relief is to be continuously expanded. The Munich Re Foundation financed part of the immediate relief measures to bring drinking water and urgently needed medicines to Tacloban.

Even as the disaster relief measures were being carried out, the first steps towards long-term risk management were also being organised. These efforts focused not only on the SOS Children’s Village itself but also included plans to rebuild houses in the neighbourhood. The goal of these efforts is to improve risk prevention in the future, and this can be ideally realised in the SOS Children’s Villages. The organisation has already been active in the country for a long time and sustainability is top priority. When relief centres such as the “Noah’s Ark” have been set up throughout the disaster area, people there will once again be able to draw hope.

For further information on this issue:

SOS Children’s Villages  
[www.sos-kinderdoerfer.de](http://www.sos-kinderdoerfer.de)

## The calm after the storm

At the end of 2012, Hurricane Sandy hit the eastern seaboard of the USA. The press reported in detail about the extent of destruction in the country. In contrast, the media remained silent about the damage caused in the Caribbean Islands, including Haiti.

Sandy hit Haiti at a particularly bad time. The country was still struggling with the impacts of the massive earthquake in Port-au-Prince in 2010. The infrastructure in many places had still not been restored, aid money was either tied up or used up; not the best of conditions for recovery and reconstruction after the hurricane.

In addition to the agricultural damage caused by the storm, the wrecked water supply and waste water disposal systems above all caused major headaches. Sanitary facilities were no longer working properly, which offered an ideal breeding ground for sickness, as was the case in L'Islet, a community in the south of Haiti. The incidence of cholera and other infections rose rapidly. Action had to be taken urgently: the SOS Children's villages aid organisation that already works in the country set up a remediation programme with our help.

Sanitary facilities were repaired, new showers, toilets and water connections were added. The hygienic conditions are now much better than before the storm. The inhabitants of L'Islet also were given training in hygiene and the efficient use of water. This increases the chances of being able to sustain a healthy quality of life in the long term.

Right: Our aid efforts following Hurricane Sandy focused on repairing the latrines on L'Islet in the south of Haiti. Today the sanitary facilities are all completely intact again.

Below: Fresh water supplies and sanitation were problematic even before Hurricane Sandy hit. The storm weakened the infrastructure even further.



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For further information on this issue:

Disaster relief  
[www.munichre-foundation.org/home/Water/DisasterRelief](http://www.munichre-foundation.org/home/Water/DisasterRelief)

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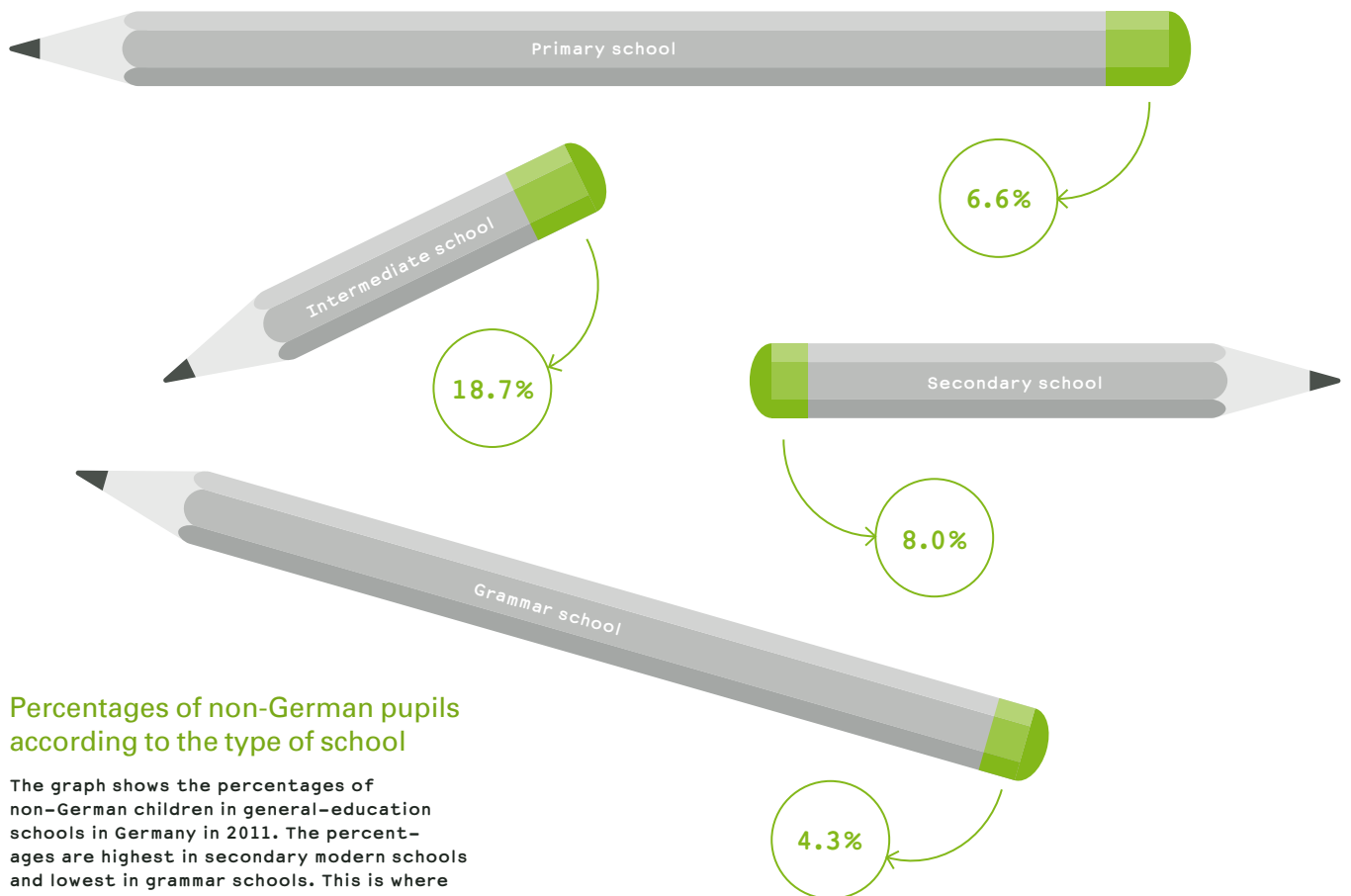


Early childhood education lays the foundation for a successful education system. In this pre-school childcare centre in Berlin, creativity knows no bounds.





# A fair education system for everyone



## Percentages of non-German pupils according to the type of school

The graph shows the percentages of non-German children in general-education schools in Germany in 2011. The percentages are highest in secondary modern schools and lowest in grammar schools. This is where education politics must begin to take action. Integration is still not succeeding.

- German pupils
- Non-German pupils\*

\* Pupils with a foreign passport or unclarified citizenship  
Source: Federal Ministry of Education and Research (BMBF)

Whether for school children or adults, in international comparisons of educational performance, Germany only takes middle and even bottom positions in the overall rankings. The education system does not work because social background is more decisive for the opportunities of social advancement than merit, and too many young people leave school without graduating.

Jutta Allmendinger



Jutta Allmendinger

is President of the Social Research Center in Berlin (WZB), and professor for education sociology and labour market research at the Humboldt University of Berlin. In her research she addresses, among other things, the subjects of labour market sociology, social inequality and social politics.

Because our structured school system prioritises homogeneity, we separate our school children at a very early age in comparison to almost all other countries. This is said to “promote their performance”. International comparative studies confirm, however, that a longer duration of joint learning can produce more high-achieving and less low-achieving children. Why do we ignore these facts? Why do we sweep aside such insights with derogatory labels such as “egalitarianism” or “comprehensive school”, although longer periods of joint learning lead to a higher standard of education for everyone? And also to greater mutual respect. How can children learn to respect people from other social and cultural groups if they have been separated from each other at an early age? A longer period of commonly shared education must be well prepared, however, and it requires a teaching approach that embraces diversity. The failure to live out the intercourse with diversity in schools and the denial of the human right of inclusive learning are the central problems of our school system. We must allow the children a longer period of learning with each other, ideally until the age of 16. We would lose no-one but win many.

#### More time for learning

Children need time and trust. Not all children learn to walk at the same time and at the same speed; our schools should take this into consideration. Instead, we have even shortened grammar school attendance by one year. Pre-school groups, childcare facilities and day schools cannot compensate for the loss. We need more and qualitatively better nurseries, childcare centres and schools that offer full day care as soon as possible. We need the exchange year abroad and the voluntary social year. With a labour market that is changing faster than ever before, we should not save on education time.

#### Developing skills and capabilities

We separate too rigidly according to the motto of: school is responsible for the cognitive competences, all the rest takes place outside the curriculum. Guiding values and key competencies can also be learned and taught at school. To do this we must change the teaching methods, teach democracy, values, cultural and social competence and train the acceptance of responsibility. We should not narrow down the teaching contents too early. We must be able to build on this base over and over again for a whole lifetime.


#### More money for education

Money alone does not guarantee a good education system. Finland spends little more per child from the primary to tertiary level than Germany. Nevertheless, the difference in the educational results is considerable. Germany strongly curbs its expenditure above all in the early school years, in which compensatory learning is most important for the children. A new course is not only needed in this respect; the financially weaker federal states and “toxic schools” must receive more money and consequently more room to manoeuvre. For the welfare of our children, we need a federalism of solidarity and should reach our self-defined goal of investing ten per cent of the gross national product in education by 2015.

#### Networking the stakeholders

Time, contents, creativity and money – these are the elements with which we must build an infrastructure that will educate our children with qualified and well-paid staff. Parents also need our support, and the many stakeholders in the education system must be networked with each other. To this end we need collaboration between totally different institutions and professions. The federal, state and local governments must cooperate with each other for this purpose. However, local education networks are also enormously important. We need education chains: schools, youth authorities, youth centres and job centres must be much more closely networked. Warning signals must be recognised early. In this way, more children can be better educated than before. The efforts required for this will be worth it in every case – not only from the economic viewpoint but also regarding happiness and contentment.



A photograph of a diverse group of children in a classroom. In the foreground, a young girl with a white headscarf is looking towards the left. Behind her, a young boy with light brown hair and blue eyes is looking forward. To his right, another young boy with dark skin is looking towards the right. In the background, a person wearing a blue and white checkered shirt is partially visible. The children appear to be listening or participating in a lesson.

School classes with children from the widest diversity of countries are not uncommon, particularly in major cities. The photograph was taken at a primary school in Leicester, England. This town is the first in Europe in which more immigrant children than nationals are attending a primary school.





Education – Climate change and sustainability

## Energy goes to school

No matter where the Green City environmental experts turn up with their “Energy School Munich”, the enthusiasm in the classrooms is always the same. The interactive workshops, exciting expeditions and intuitively designed teaching aids are highly popular with the pupils.

“Now at last I know what I want to be: a solar technician,” declares a delighted pupil of the secondary school on the Inzeller Weg in Munich. A Green City team is currently visiting seventh- and eighth-grade classes at the school with its “Energy for the Future” workshop. Within the framework of a three-day teaching project, workshops are held on such subjects as “Climate Change and its Impacts”, “Energy Preservation in Daily Life” or “Professions in the Field of Renewable Energies”. Armed with infrared cameras, the pupils comb their school in search of thermal bridges.

As they discuss the question of correct insulation it quickly becomes clear that the subject of energy conservation has many facets. On a visit to an engineering guild that rounds off the programme on the third day, the young students learn about career opportunities offered in the field of renewables. Project leader Gaby Kourkgy from Green City is pleased when girls also show an interest in professions such as energy consultant or solar technician, and occupy themselves with the subject of sustainability when they have finished school.

How do “sunshine ravioli” taste? Can you make pasta without using electricity? The “Sun – Full of Energy” module provides the younger pupils with answers, resolving many questions on the subject of energy and cutting down power consumption with practical demonstrations. Last year, over 1,000 primary school pupils between eight and twelve years assumed the role of young energy researchers and pursued their tasks with great fervour. After all, there was a lot to be discovered. The Green City environmental teams had come equipped with solar cookers, electricity consumption meters and a power bike. The gear was used to carry out experiments, perform research and make new discoveries – and all just in the daily use of electricity. The children were able to work up a sweat on the power bike and gain a physical impression using their own body of how much energy is required to bring water to the boil. At the end of the project, the children were rewarded with “sunshine ravioli” made on a solar cooker.

In 2013, the new “Your Energy School – Add Power and Warmth to the Curriculum” module was added to the programme. This module is aimed as a further training course at the teaching staff of secondary and intermediate schools. Teachers are given recommendations and material on how to implement the subject of energy efficiency at school according to the age group of the classes. This teaching aid makes it easier for them to naturally and smoothly integrate the subject of energy conservation into the daily curriculum.

For almost ten years now, Green City e.V. has been working in the area of environmental education, offering children a wide range of illustrative and practical environmental projects. The Energy School Munich reached a total of 1300 Munich schoolchildren and adolescents in 2013 – a huge success for the environmental organisation and for the foundation that funded the workshops. As we all know, the development of energy-sensitive behaviour at an early age paves the way for living a responsible life in the future. Something we will all benefit from.

Left: School children as energy researchers: the children measure the electricity consumption of lamps, radios and water boilers. This gives them a good impression of the major energy consumers in a household.

Below: Pedalling for light. This home-trainer bike teaches the children in the energy school how much energy is required to light up a bulb or boil water. It's an interesting and at the same time useful lesson.



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For further information  
on this issue:

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Green City e.V.  
[www.greencity.de](http://www.greencity.de)

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## Interview with Martin Glöckner, CEO of Green City



Martin Glöckner

is the CEO of Green City e.V. The organisation is aimed at making Munich more sustainable and at nurturing “green” knowledge in Munich’s citizens by means of active projects.

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For further information  
on this issue:

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Green City e.V.  
[www.greencity.de](http://www.greencity.de)

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The Green City e.V. environmental organisation has been active in Munich since 1990 and wants to make the Bavarian capital fitter for the future: with urban planning oriented to the residents’ quality of life, environmentally friendly mobility, environmental education for all age groups and the responsible use of energy. With a programme of 150 events and other activities, Green City supports active citizenship, awareness education and social discourse.

Mr. Glöckner, you have been CEO of Green City for over five years now. Which projects, in your opinion, are the most instrumental in promoting people’s understanding of the mission of your organisation?

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That depends on the target group. The main priority in educational projects is to make it possible for each individual to have his or her own personal experience. In this way pupils at the Energy School of Munich, for instance, can experience how much muscle power, and consequently energy, is required to bring water to the boil. The Sicher unterwegs (Getting Around – Safe and Sound) mobility training programme provides senior citizens with the opportunity to practice for trips with the public transport system.

And activities in public?

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During events on the street, we above all gain a foothold with unusual activities that interrupt daily routines and astonish people and then make them reflect on things. The Wanderbaumallee (Trees on Wheels) project for greening up grey streets is the best example of this. All our events must be positive both in outlook and presentation and also be solution oriented. We will not change anything with moralistic finger wagging.

Why is climate education so important to Green City?

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Awareness training and educational work, as so-called “soft” measures, are essential to tackle the most urgent problem of this century. The young generation offers us the potential required to establish a less wasteful society. That’s why I find it both astonishing and alarming that small heed has been paid to the aspect of education and promotion of awareness in climate protection so far.

And why is this?

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Probably because it is associated with a partial shift away from economic interests and old acquired habits. All the more reason for Green City to present climate protection as attractive and action-oriented.

Is Munich on the right track to becoming a “Green City”?

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Munich is doing a lot to take a more sustainable position, for example in the field of procurement management, organic nutrition and local public transport. However, to really achieve sustainability, a lot more must happen: in the energy sector, the co-generation of heat and power and also building insulation must be pushed ahead, the municipal utility services must discontinue the supply of electricity generated from coal more quickly. We are also calling on the city council to reserve a lot less space for private cars. And instead of plastering green areas, a great deal more green oases should be created in public spaces. This would make a significant contribution to the quality of life in Munich.

Do you already have ideas for new projects?

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My wish is a comprehensive campaign dedicated to climate protection that integrates the majority of Munich residents in practical terms. Green City has already developed appropriate ideas in this direction. Now all that remains is to convince the politicians – child’s play (laughs).



## Further activities



### Bachelor's, Master's and other academic theses

As our fog net project (see Page 36) is also part of a scientific research programme, we fund Bachelor's and Master's theses on this subject. Thesis topics address technology stability, the quality of the harvested water and social aspects. Research partner is the Technical University of Munich.

In 2013 we supported a Master's thesis in the area of nutrition and resource economics. The graduate, Sonja Riedke, investigated the "Risks of small scale farmers and the potential of financial services as risk management instruments".

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[www.munichre-foundation.org](http://www.munichre-foundation.org)



### Seminar for sustainable solutions at the University of Applied Sciences in Munich

The Munich Re Foundation organises the "Water, climate, environment – sustainable management of global challenges" seminar at the University of Applied Sciences in Munich. 15 students are familiarised with the concept of sustainability each semester. The goal is to increase the students' awareness of this subject for their later professional lives.

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[www.hm.edu/en](http://www.hm.edu/en)



### Virtual Academy making headway

The Virtual Academy was developed at the University of Bremen with the support of the Munich Re Foundation. It offers almost 500 tutorial videos: from climate protection and sustainable business management to sustainable marketing and the major transformation of society. The 30,000 visits to the site through Youtube confirm the interest and demand. A total of 1,200 students are officially registered at the Virtual Academy. 22 universities use the programme and subsequent to an exam award relevant credit points for the course of studies being followed. Six hundred students have already received this important confirmation of learning achievement.

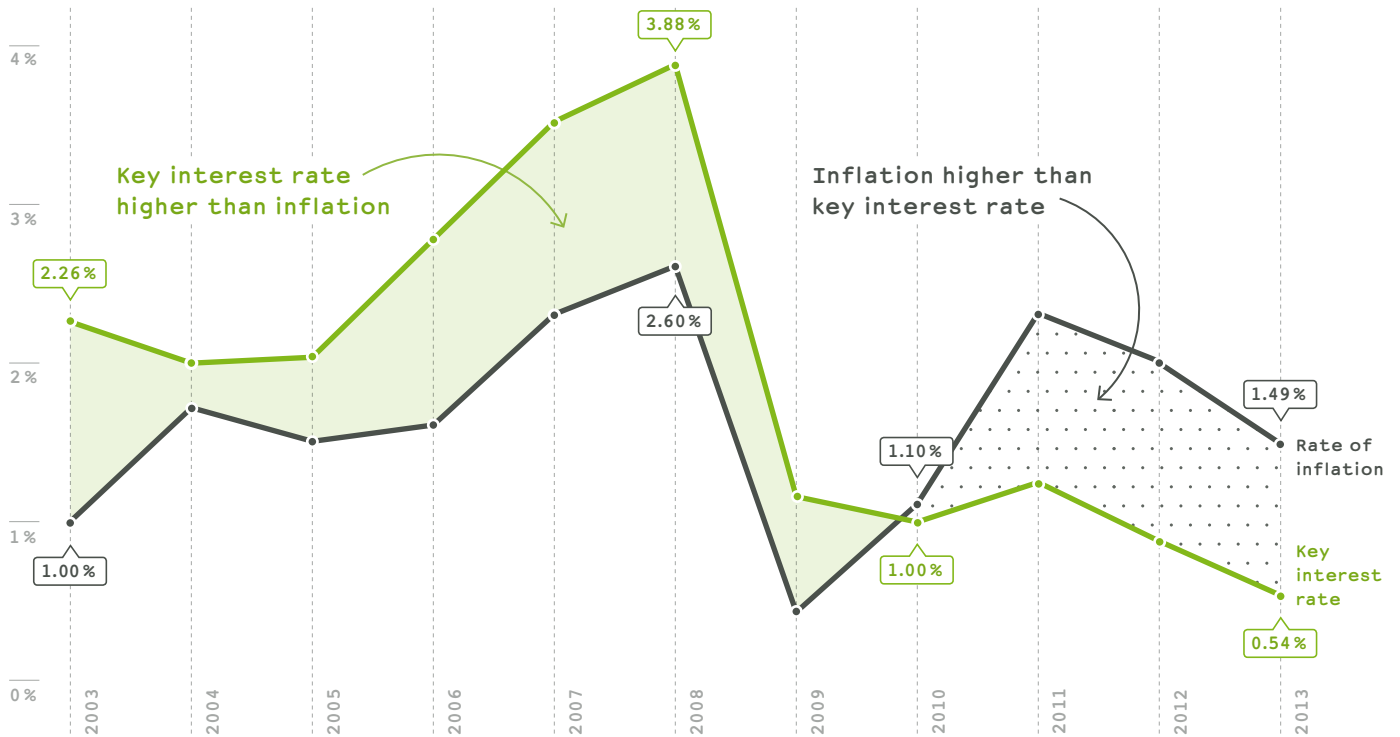
The academy's programme is steadily growing, and the English-language modules in particular are meeting with widespread interest – from England to the USA and Australia.

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Click the link to have a look:  
[www.va-bne.de](http://www.va-bne.de)

Fluctuating exchange rates and falling interest are not only a headache for stock traders. Numerous foundations in Germany and elsewhere often suffer from lower revenues in times of crisis and difficulty in financing their foundation work.



# Lean years for foundations



## Development of the ECB's key interest rate and the inflation rate in Germany from 2003 to 2013

Low interest rates and high inflation are a tough challenge for foundations. In Germany, they are obliged to preserve the foundation's real capital. Since 2010, there have been serious problems: the inflation rate is higher than the key interest rate and there are no signs of a shift in interest policies.

Source: Munich Re Foundation, own blueprint 01/2014; basis for data: statista (de.statista.com)

The unconventional monetary politics of the major central banks are helping the global economy. However, institutions that depend on capital growth, such as foundations, are coming under increasing pressure as a result. This raises the question of how reasonable returns can even be achieved in times of low interest rates and potential state bankruptcies.

Michael E. Bös





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In Germany there are some 20,000 foundations that finance their work to a greater or lesser extent from returns earned on the foundation's capital. They suffer from the fact that the revenues for "secure" investments such as government bonds with good credit standing have fallen strongly in recent years. This not only reduces the financial scope for projects but also jeopardises the objective of preserving the foundation's real capital. For this purpose, inflation must be offset by the regular accumulation of free or undisclosed reserves. However, how can this work if almost no returns can be achieved with a reasonable risk?

The historically low interest rates are the result of a massive market intervention on the part of the central banks. The good news is that this has prevented major states from going bankrupt – at least so far. On the other hand, the central banks are overriding certain market mechanisms with the promise of unlimited bond purchases and other unconventional measures. The frequently invoked "too big to fail" theory distorts the decisions of the market participants, as the possibility of failure is, after all, a major component of our market economy. If this necessary corrective mechanism is immobilised, the prices and revenues of assets no longer reflect the actual risk involved. Flooding the markets with freshly printed money also has adverse effects. Although inflation is still not visible in daily life, many economists are expressing their misgivings in view of such a glut of money.

What action can the asset manager of a non-profit foundation take under such conditions? A closer look at one's own portfolio can offer valuable clues. First of all it must be clarified how the capital investments are reacting to changed market and framework conditions and where credit risks could be lurking. Further important indicators include equity weighting and the duration of the average cash conversion cycle for bonds. At present the motto is "the shorter, the better". When the unavoidable interest rate rebound comes, as come it must, bonds with long-term durations will suffer overproportional capital losses.

Many foundations have paid too little attention to their asset management in recent years, some allowed themselves to be led into taking higher risks because of the allegedly higher revenues. Both approaches are misleading as the whole point is actually to secure the foundation's capital. The importance of this priority can be demonstrated by a look at the USA: here the foundation of the elite Harvard university is still struggling with the losses incurred during the financial crisis which, according to estimates, at times amounted to 30% of the foundation's capital. This leads to the conclusion that the objective of capital preservation can only be achieved with a long-term investment strategy and realistic revenue expectations.

The present market situation makes it difficult to generate satisfactory revenues with appropriate risks. For this reason, expectations should not be oriented to the results of earlier years. The Munich Re Foundation has generated an average revenue of more than four per cent per annum since 2002 and has never experienced a year with losses – despite the difficult framework conditions. For the coming years, capital preservation, in other words, a break-even result, is the main priority. Depending on whether the interest rates soon leave their all-time low behind or remain on the present level for a longer period of time, a different positioning will be required. Both scenarios require different strategies for which the course must now be set.

Regardless of scenario, a decisive rule of asset management holds that capital investments must be broadly diversified. This succeeds with a mixture of corporate and state bonds from different regions supplemented by a blend of shares and real estate. This is often easier said than done. A sophisticated and broadly diversified investment strategy requires resources that are often only available to larger foundations.

Even if everything for the capital investment is done correctly, the foundation's own formalities make the goal of capital preservation more difficult under the current conditions. As long as not more than one third of the ordinary income can be reserved for this purpose, this cannot be achieved with returns that scarcely balance out the impact of inflation. What is required here is an adjustment of taxation and foundation legislation to give the foundations more flexibility. We should not succumb to any illusions: safety-oriented investors are still facing lean years ahead. One can only hope that the supervisory authorities will take the changed financing market environment into consideration and support foundations accordingly.

The financial crisis keeps the whole of Europe on tenterhooks. Spain has the highest unemployment rate on the continent. This leads to repeated and heated protests and demonstrations. There are still no signs of an end to the financial crisis.





Internal foundation issues

## Climate balance for 2013 – CO<sub>2</sub>-compensation with hydropower

Our projects generate unavoidable CO<sub>2</sub> emissions as a result of power consumption, heating and business trips. In 2013, the emissions totalled 1,700 metric tonnes. The largest proportion was caused by our major events in Asia (International Microinsurance Conference in Indonesia and Resilience Academy in Bangladesh) and the associated flights of the project partners and delegates.

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 other emissions in 2013, we purchased CO<sub>2</sub> certificates and thus supported a hydropower project in Renun in the Indonesian province of Northern Sumatra. A small hydropower station there uses a natural drop of 500 metres in elevation to produce electricity. The water comes from the Rivers Lau Renun, Haporas, Bargot and Tapan Nauli. Hydropower still only contributes one per cent to the power generated in Indonesia but its potential is slowly being tapped.

Not only will the funds from the CO<sub>2</sub> certificates promote the development of hydropower in the country, the local communities too will benefit from reforestation measures in the catchment areas of the rivers. Part of the funds will also be used to improve the public health system while schools, churches and mosques will also receive financial support. In this way, the compensation payments contribute to sustainable development in the region.

Emissions have risen slightly since 2013 as the International Microinsurance Conference was held in Indonesia. This has lengthened the journey to the conference for many delegates – higher CO<sub>2</sub> emissions due to the longer flights are the result.



Source: Munich Re Foundation, 2013

For further information on this issue:

Environmental performance  
[www.munichre-foundation.org/home/About-us/Environmental](http://www.munichre-foundation.org/home/About-us/Environmental)

ClimatePartner  
[www.climatepartner.com](http://www.climatepartner.com)

This hydropower station in Renun in Indonesia produces environmentally friendly electricity and generates emission certificates as a result. The Munich Re Foundation uses them to offset the emissions of its operations so that the work is consequently carbon neutral.





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Members of the Munich Re  
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are listed below:

Climate Change, Environ-  
ment and Migration Alliance  
(CCEMA), Geneva (Steering  
Committee member)

IFC Advisory Panel on  
Business and Sustainability  
(Member)

Microinsurance Network,  
Luxembourg (Board of  
Directors, member)

Munich Climate Insurance  
Initiative (MCII), Bonn (Exec-  
utive Board member)

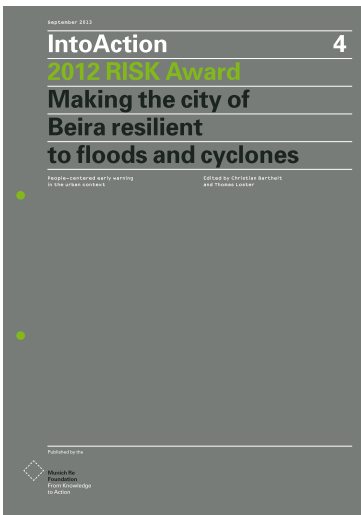
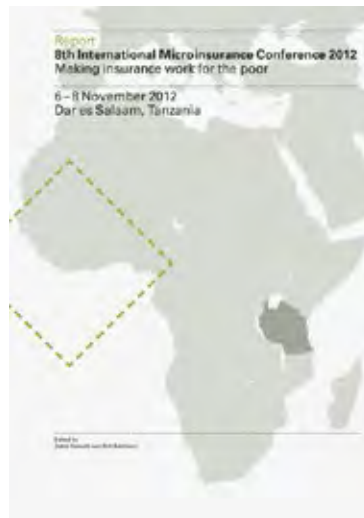
Siemens Stiftung,  
empowering people.Award,  
Munich (Jury member)

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)

# Publications



## Own publications

**2012 report**  
Date of publication  
03/2013  
Order numbers  
German: 302-07841  
English: 302-07842

**8th International  
Microinsurance  
Conference 2012:  
Making insurance  
work for the poor**  
Date of publication  
04/2013  
Order number  
English: 302-07891

**Into Action 4  
Risk Award 2012:  
Making the city of  
Beira resilient to floods  
and cyclones**  
Date of publication  
09/2013  
Order number  
English: 302-08054

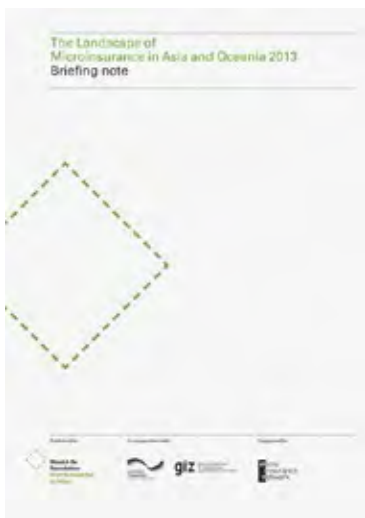
**Positionen  
Dialogforen 2013:  
Die (un)mobile  
Gesellschaft - bereit  
für die Zukunft?**  
Date of publication  
09/2013  
Order number  
German: 302-07991

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## Further information:

[www.munichre-foundation.org/home/Publications](http://www.munichre-foundation.org/home/Publications)

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**Publications with project partners**

The landscape of microinsurance in Africa – Full version

Date of publication 05/2013  
Order number English: 302-07801

Note de briefing – Etat des lieux de la microassurance en Afrique

Date of publication 05/2013  
Order number French: 302-07782

The landscape of microinsurance in Latin America and the Caribbean – Full report

Date of publication 6/2013

The landscape of microinsurance in Asia and Oceania – A briefing note

Date of publication 11/2013

Microinsurance learning session Nigeria – Report

Date of publication 12/2013

**UNU-EHS project publications**

2013

InterSecTions

Dr. Melanie Gall

From social vulnerability to resilience: measuring progress towards disaster risk reduction

2013

Source

Prof. Dr. Susan Cutter,

Dr. Cosmin Corendea

From social vulnerability to resilience: measuring progress towards disaster risk reduction



# Current projects 2013



## Increasing resilience in Bangladesh

Project partners:  
ICCCAD and UNU-EHS

With regard to natural disasters and the impact of climate change, Bangladesh is one of the countries most at risk in the world. Together with the United Nations University (UNU-EHS) in Bonn, we support the International Centre for Climate Change and Development (ICCCAD) in Dhaka. In addition to research on the resilience of people in Bangladesh, the aim is to safeguard several communities in risk zones against natural disasters. Our experiences in Mozambique will help us implement warning systems.

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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, 2013 in Bangladesh and 2014 in Germany. Together we will analyse what resilience means to 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.

Pages 18, 21 and 22



## Virtual Academy of Sustainability

Project partners:  
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 which confirm learning achievements relevant to the course of studies. The Munich Re Foundation has been funding this innovative concept since 2012.

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## Education projects in Munich

Project partners:  
Munich University of Applied Sciences and Green City e.V.

One of the foundation's aims is to pass on its knowledge to pupils and students. The foundation's focus, for example, determines 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 also support the Energy School of 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.

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Munich Re Foundation,  
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Federal Ministry of Education  
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#### Preview of 2014

##### 21 January

Dialogue forum  
"Food for everyone – but how?"

##### 11 February

Dialogue forum "Savouring the seas –  
are we decimating the oceans?"

##### 17 March

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

##### 25 March

Dialogue forum  
"How 'organic' is organic food?"

##### 3 April

Dialogue forum "Starved and stuffed –  
are we eating ourselves sick?"

##### 13 May

Dialogue forum "Food – a pawn  
in the hands of speculators?"

##### 17–23 August

Resilience Academy discussing  
"Protecting livelihoods"

##### 24 August

Prize giving ceremony for the  
RISK Award 2014 at the IDRC Davos

##### 1 October

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

##### 10–14 November

9th International Microinsurance  
Conference in Mexico City, Mexico



### International Micro-insurance Conference and Learning Sessions

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 since 2005, every 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. In addition to this, we organise Learning Sessions on this subject in several countries with microinsurance potential.

Pages 6 and 12



### Publications on microinsurance

Project partners:  
ILO, MFW4A, IADB and MicroInsurance Centre

The book, "Protecting the poor – A microinsurance compendium – Volume II", came out in April 2012. As a comprehensive text book, the second volume of the compendium addresses contemporary questions that were discussed at our microinsurance conference. The textbook also closes gaps in the contents of the first volume from 2006. In the meantime, it has been translated into four languages. In 2013, "The Landscape of Microinsurance" studies were published for Africa, Latin America and the Caribbean. The analysis for Asia will appear in 2014. The publications take an all-round look at the current status and dynamics of the microinsurance market on the respective continents.

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### Dialogue Forums in 2013: The (im)mobile society – Ready for the future?

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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... to ...





### 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. 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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### Disaster relief – Haiti and the Philippines

Project partners:  
SOS Children's Villages international

When natural disasters hit and people urgently need help, the foundation also provides disaster relief. One of our main concerns is the improvement of drinking water supplies. In 2013 we supported a project in Haiti. The country was severely hit by Hurricane Sandy at the end of 2012. We also support the SOS Children's Village in Tacloban in the Philippines. In November 2013 typhoon Haiyan devastated large areas of land in this region.

Pages 38 and 39



### 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 funding two projects: one in the Anti-Atlas Mountains of Morocco and another in Tanzania. Using innovative approaches we ensure a fully functioning water supply thus enhancing the life quality and improving 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 has increasingly met with its limits: anchoring fixtures break, strong winds destroy the nets, captured water is lost due to inefficient collecting systems. In cooperation with Water-Foundation Ebenhausen we support the 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 of Munich is assisting in the scientific work of the project.

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