

**Munich Re
Foundation**
From Knowledge
to Action

2007 report



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Children wave from a hilltop in Mugeba, Mozambique.

Climate change was the major focus of political and public discussions in 2007. The year was marked by dramatic reports published by the Intergovernmental Panel on Climate Change, a body which shared the Nobel Peace Prize with environmentalist Al Gore, and by the World Climate Conference held in Bali at the end of the year to discuss the thorny issue of global greenhouse gas reductions.

The Munich Re Foundation was also present at the Bali conference and drew attention to the issue of climate change and justice. Although the high concentration of CO₂ in the atmosphere is largely caused by the industrialised nations, the consequences are borne primarily by the poor of the developing world. We will be addressing this global justice issue together with well-known partners from the academic world and society in a new project, details of which can be found on page 16. Our principal concern is to find practicable solutions.

Microinsurance has made considerable strides in this respect and is helping more and more people in the developing world to safeguard their livelihoods, a fact confirmed by India's Finance Minister Sri P. Chidambaram, at the third International Microinsurance Conference. At the November conference in Mumbai organised by the foundation and the CGAP Working Group, some 300 experts from more than 50 countries discussed current trends (page 14).

The projects for school pupils launched to promote sustainable action, another foundation concern, met with a great response (page 22). The foundation's work in the field has also borne fruit, as demonstrated by the fog nets programme in Eritrea (page 36) and the flood-warning system on the River Búzi (page 34). The system passed its first major test with flying colours, and many lives were saved. The appreciation expressed by the government's representatives on disaster control spurs us on to continue trying to improve the lives of people at risk by moving forward, in the words of the foundation's motto, "From Knowledge to Action".



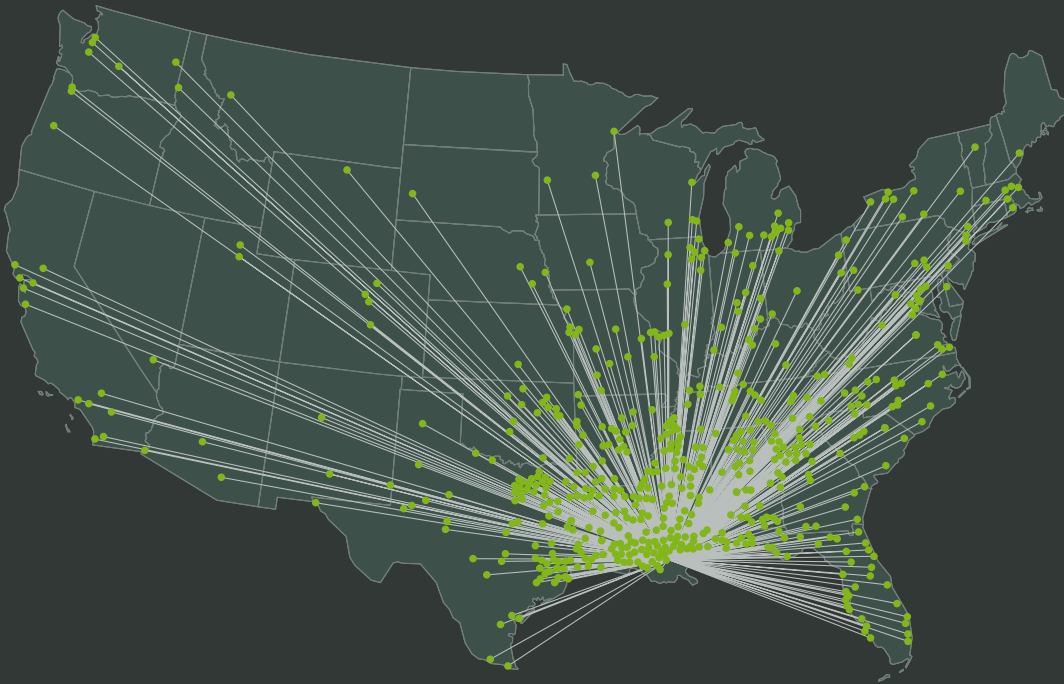
Thomas Loster
Chairman



Waiting at an emergency shelter: in 2005, Hurricane Katrina devastated much of New Orleans, forcing hundreds of thousands to flee.

People separated from their roots
Hurricane Katrina triggered the greatest mass migration in US history. Far from having returned, many are still scattered throughout the USA.

Source:
www.epodunk.com



Catastrophes, migration and life in the diaspora

Prof. Anthony Oliver-Smith

Climate change will force more and more people to leave their homes as well as their traditional social and ecological environment. If we fail to counter this trend, millions of refugees from the regions under threat will set a huge wave of migration in motion.

Cries for help around the world are becoming commonplace as water levels rise. This also applies to Shishmaref in Alaska, where the protective layer of permafrost is thawing, leaving the shoreline more vulnerable to erosion, and to Bangladesh, which is regularly visited by floods. Images showing the exodus of hundreds of thousands from the area around New Orleans devastated by Hurricane Katrina in 2005 paint a drastic picture of the possible consequences of climate change.

People have always had to adapt to changes in their environmental conditions, temporary or permanent relocation being part and parcel of successful survival strategies. The main problem today, however, is that many social systems simply cannot cope with the speed and extent of change. Factors exacerbating the problem include population growth, increasing population density, social upheavals and rapid deterioration of the environment.

Global warming harbours the risk of a growing number of extreme weather conditions and catastrophes with enormous destructive force. In the last 50 years alone, weather-related losses have risen tremendously, the trend having become even more marked since the mid-1980s. For example, mean annual economic losses caused by major weather catastrophes rose from US\$ 12bn to US\$ 40bn in the 1990s. We have to assume that cyclones and storm surges will pose an even greater threat in future, the consequences of which will be felt not only on the coast but also far inland.

Many people will be displaced as drought and flood lead to widespread loss of agricultural land. People in coastal areas lying between only one and ten metres above sea level will face persistent flooding. And although these areas account for only 2% of the world's total land mass, they are home to 10% of the world's population and to as many as 13% of city dwellers. Two-thirds of all cities with more than five million inhabitants can expect higher water levels. If the forecasts come true, mass migration will take place in the next 30–50 years, especially in Asia, where 75% of the people living in low-lying regions are at risk.

Those who lose their homes are also cut off from their traditional social and ecological systems. Supplies of food, water and fuel are no longer guaranteed. Migration also weakens traditional family ties, and cultural aspects together with spiritual or aesthetic symbols that define and sustain a community are irretrievably lost. The breakdown of social structures following Hurricane Katrina is indicative of the extent of this threat. Of around 1.5 million people who fled the region at that time, only one third had returned two years later. For many, life in the diaspora has become a permanent state. Experts therefore refer to the first documented "climate change refugees", victims of global warming.

This shows just how powerful the relationship is between catastrophes, social forces and migration movements. Politicians and scientists have reacted by focusing more attention on cities such as Mumbai, Caracas, Cape Town, Dar es Salaam, Manila and Darwin. These conurbations, which have a total of approximately 50 million inhabitants, are exposed to risks similar to those of New Orleans. The material losses and human tragedies caused by Hurricane Katrina should provide the incentive needed to develop concepts, strategies and instruments that actually work. This alone will enable us to meet the growing challenges that the migration and relocation of whole population groups are likely to pose in the 21st century.

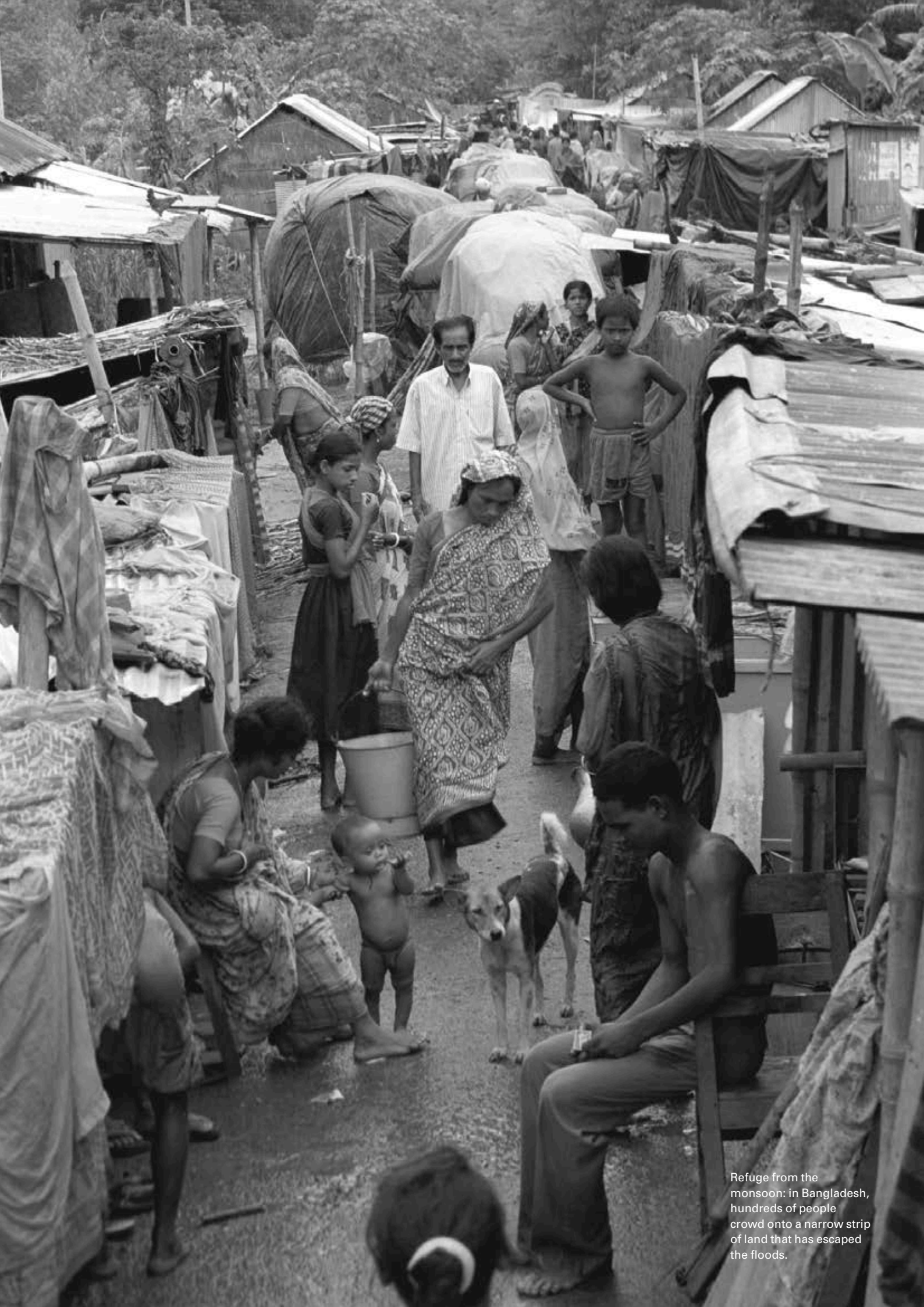
Hurricane Katrina claimed more than 1,800 lives. Poverty was one of the main reasons for the vulnerability of the inhabitants of New Orleans. Some 25% were living below the poverty line, more than 90% were African Americans.

Katrina caused a flood wave that towered nine metres high and damaged some 270 kilometres of levees. One year later, New Orleans had still not recovered: around 60% of homes had no electricity supply or drinking water.

According to UN statistics, there were around 200 million migrants worldwide in 2005, of whom 70% were refugees, and approximately half women.

In 2002, there were more environmental migrants (25 million) than war refugees (21 million) for the first time on record. The World Water Commission believes that the 2025 figure could be four times that amount.

Prof. Anthony Oliver-Smith is Professor of Anthropology at the University of Florida. His work focuses on issues of post-disaster social organisation. He has been appointed to the Chair on Social Vulnerability at the United Nations University (UNU-EHS), financed by the Munich Re Foundation, for the academic year 2007/2008.



Refuge from the monsoon: in Bangladesh, hundreds of people crowd onto a narrow strip of land that has escaped the floods.



In his opening speech Prof. Dr. Hans-Georg Bohle, Dean of the Summer Academy, outlines the main items on the agenda.



Joseph Mayunga from Tanzania (left) discusses his country's capital with Patrick Saldolparak from Bonn. Around 75% of the inhabitants of Dar es Salaam, work in the informal economy.

2007 Summer Academy

Conflicting forces within megacities

The Munich Re Foundation and the United Nations University's Bonn institute jointly organised the second Summer Academy on Social Vulnerability, held at the end of July 2007. More than twenty young academics from 15 nations, together with a group of renowned international experts, spent a week analysing issues relating to the challenges of megacities and the proliferation of slum areas. One of the week's highlights was a visit by the Mayor of Kolkata, India, Bikash Bhattacharya.

Over half the world's population now lives in cities. More than 400 million people are crowded into megacities, which are defined by the United Nations as conurbations with over ten million inhabitants. The United Nations University and the Munich Re Foundation therefore chose poverty and the quality of life in megacities as the main themes of this second Summer Academy.

The Summer Academies are an annual event held to bring together prominent young academics from around the world and distinguished experts, including network partners of the Munich Re Foundation's Chair. It is an ideal forum for presenting the latest research initiatives and findings. The discussions also act as a useful springboard for new ideas, which in turn provide inspiration for academic research.

The participants, pre- and post-doctoral students from all over the world, include geographers, psychologists, anthropologists, engineers and planners, since the key to finding new solutions to old problems often lies in combining different disciplines. The task of the Summer Academy was to create a framework specially tailored to social vulnerability and resilience by analysing the problems encountered at various levels in megacities and examining them from an overall perspective. This takes account of the need to achieve a balance in the megacity melting pots between local and global interests, formal and informal sector, and social and ecological concerns (chart, page 9).

The discussions were based on ideas already successfully implemented in research, and on the experience and wide-ranging knowledge of the participants. The honourable Mayor of Kolkata, Bikash Bhattacharya, had made the journey from India to join in the discussion on the Summer Academy findings, and he was able to give a first-hand account of the way that decision-making in shanty towns is affected by the different forces at play.



Rebekah Green, of Columbia University, New York, makes last-minute adjustments to the resilience framework.



Mara-Daria Cojocaru (Germany) and Tarita Ledesma (Philippines) explain the framework.

Bikash Bhattacharya, the Mayor of Kolkata, gives an account of life in his city.



To illustrate the constraints to which the various interest groups were subjected, a role-play approach was applied to a real-life problem: the impending resettlement of over a million people – the inhabitants of Dharavi, a district in Mumbai and Asia's biggest shanty town. Imagine a football pitch. Now imagine a football pitch filled with 30,000 people and you get a pretty good idea of Dharavi's population density. Thus, the academics assumed the roles of prime minister, minister for urban development and mayor to discuss the issues at stake with people living in the slums, activists and international investors. The discrepancy between academic models, multidisciplinary planning and reality helped cast fresh light on a number of issues.

For instance, it emerged that plans by Mumbai's urban developers to gain space by moving people into multi-storey buildings might work on paper but not in practice. The problem is that people accustomed to making do with very basic dwellings and confined conditions dislike the anonymity of the concrete blocks, and ultimately leave the new accommodation to return to their former environment. The role-play exercise graphically demonstrated to participants that rehousing schemes are doomed to failure if they are implemented as a purely technical procedure and do not take people's needs into account.

The Mayor of Kolkata endorses this view: "We could, of course, gain space by allowing Kolkata to grow upwards but people who have lived in a slum don't want to move into a multi-storey building. If you separate them from their neighbours, they feel isolated." Moreover, you could not force people to resettle because moving them from the streets amounted to robbing them of their culture.

Despite the massive problems of megacities, the rural exodus will continue because conditions in the countryside are often much worse. The poorest members of rural society are generally illiterate and have virtually no prospect of escaping poverty. Megacities, on the other hand, offer millions of people of all classes opportunities to earn money and thus improve their living conditions and social network, to some measure at least.

Mr. Bhattacharya can confirm from his own experience that "people come because they want to have the advantages of city life". To stop people flocking in droves into the already overcrowded centres, those advantages – work, business and transport facilities – had to be provided in the suburbs as well. He concludes: "New centres will have to be created in the suburbs." It is to be hoped that the politicians will soon translate this proposal into action.

For further information on this issue:

Munich Re Foundation
Chair on Social
Vulnerability
www.ehs.unu.edu

 Interview with Monalisa Chatterjee

“Unplanned urban development increases social vulnerability”

Megacities and the problems faced by their inhabitants get bigger every day. Nearly all major conurbations live in the shadow of natural hazards like the torrential rains that lashed Mumbai in July 2005. The city achieved the dubious distinction of the highest rainfall ever recorded in 24 hours: 944 litres per square metre. As a result, it suffered devastating floods.

Monalisa Chatterjee, who attended the Summer Academy, lives in Mumbai and experienced the catastrophe at first hand. She researches flood management and losses in megacities.

The people of Mumbai are used to torrential rain and floods. What made the summer 2005 floods so different?

We were all completely overwhelmed by the sheer quantity of rain. Precipitation is usually around 2,500 mm during Mumbai’s June–September monsoon season. In July 2005, half that amount fell in just three days. We had not seen such torrential rain for more than 50 years. Much of the city was under water, public life came to a standstill, and the shanty towns in particular were affected, many of the makeshift dwellings being simply washed away.

Was the storm caused by climate change?

To begin with, we were far too busy dealing with all the damage to think about the possible deeper causes. We didn’t start to analyse the situation until later on. However, climate change was not uppermost in people’s minds. People in Mumbai thought that the main reason for the scale of the devastation was major urban development projects driven forward by the authorities without any clear overall plan.

What factors particularly affect social vulnerability?

The city is bursting at the seams. But urban development pays far too little attention to the interests of the local community and the well-being of the local people, and that considerably increases social vulnerability. One problem in this respect is that decision-making in Mumbai tends to be in the hands of government departments, which are too remote from the real conditions and problems, rather than being vested in the city’s elected representatives.

Will the flood defences be improved in the near future?

At least the 2005 floods made people stop and think. An agency was set up to improve the hydrology of the River Mithi. The city authorities believe that the flood issue in Mumbai will be solved once the Mithi is able to flow again unhindered. However, the problem is far more complex than that, and this measure is just the first step. There will probably never be defences that are effective against rainfall like that of July 2005.

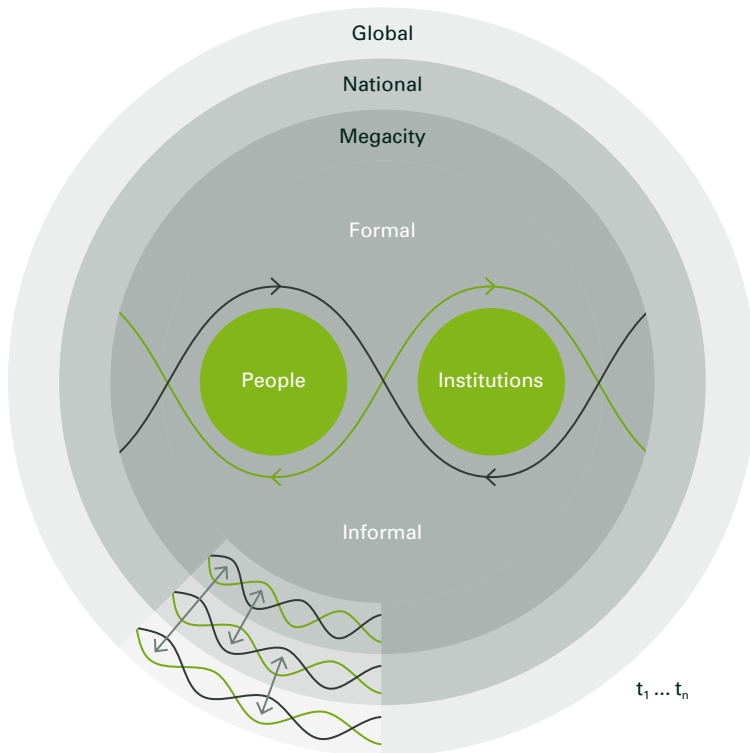


Monalisa Chatterjee lives in Mumbai and researches flood management in megacities.

Megacity dynamic stress model

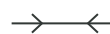
Vulnerability research has always worked with concepts and models. A goal of the second Summer Academy was to create a viable cause-and-effect diagram to take account of the real challenges facing megacities.

Why is it that slums can continue to exist on the outskirts of megacities? Do institutions take sufficient account of the needs of the urban poor? To what extent does nature have a place in cities as an aesthetic and natural resource? Participants at the Summer Academy sought to answer these and other questions using a dynamic stress model. Resilience in terms of coping capacity means being able to face the adverse consequences of stress. The expression refers primarily to mental resilience, the reverse of the coin being vulnerability to outside influences. The model describes the interlinking tensions within a megacity, but does not give any indications concerning potential political influence.



 **Socio-ecological system**

 **Resilience**
Ethics, diversity, empowerment, access, learning, cooperation

 **Vulnerability**
Exclusion, exploitation, ignoring, segregation, uniformity, hubris

The model

Two groups play a prominent role in megacity life: people in their individual households, and the decision-makers of institutions or the authorities. Various levels are interrelated in the chart:

- The influence or responsiveness of megacities extends from local to national and global spheres.
- Megacities have a formal and an informal sector.
- The megacity is influenced by its socio-ecological environment and vice versa.

The key lies in the overall dynamics, absent from many resilience development models. They are expressed in the convoluted lines of the socio-ecological system. Given favourable circumstances, they can reinforce coping capacity but if circumstances are unfavourable, vulnerability may be increased. In this way, a megacity is very much like a living organism.

The development of resilience moves along a time axis and may be helped or hindered by the reactions of the socio-economic environment. The starting point is an exogenic event that causes stress or constitutes a risk for the megacity. Such events may be natural or technical in origin (earthquakes, contaminated drinking water, etc.) or may be due to political upheaval.

The reaction depends on the extent to which people and institutions are prepared to deal with the events, and on their potential to adapt. For instance, slums are often exposed to hazards such as fire, earthquake, flood and windstorm. Despite this physical vulnerability, social networks enable the inhabitants to deal with such shocks and live what is by and large a normal life, with work and social contacts. People are able to learn from the event and are better able to cope with similar cases. Their resilience is strengthened. However, once the scale of the event exceeds a certain critical level, people are no longer able to react in the appropriate manner. Vulnerability increases.

The critical point varies according to the individual case. It depends on factors such as the extent to which people have access to social, natural and institutional resources or are involved in planning procedures. Whether they emerge from this process strengthened or weakened in turn affects their socio-ecological environment. In this way, the wheel turns full circle.

Source:
Results documents UNU Bonn,
Koko Warner, 2007

ٹاپ مین سیرینک اینڈ کراپٹریز

پروپرائیٹرز
محمد جاوید اینڈ برادرز

عمدہ سلائی لاجواب فننگ اور اعلیٰ قسم کی مردانہ کمپوز کی ورائی دستیاب ہے

واللہ خیر الزوین

TOP MAN
TAILOR'S & CLOTH HOUSE



A tailor pictured in front of his shop in Mirpur, Pakistan: in developing countries microinsurance offers a way for small entrepreneurs to protect their livelihoods.

Emerging from the niche

Dirk Reinhard

Nobel Peace Prize winner, Muhammad Yunus – who has specialised in micro-credits since 1976 – has granted seven million micro-credits. Some 97% of the money has gone to women borrowers. The repayment rate is over 98%.

As people wish to safeguard their families' livelihoods, potential policy-holders give priority to sickness and death cover. Accordingly, these are the risks covered by most products.

Microinsurance is moving forward primarily in Asia. In India alone, over six million people are covered by 70 different types of insurance.

The pioneering work is bearing fruit: microinsurance is not just making headway, it is positively forging ahead in some regions. Slowly but surely, commercial providers are appearing on the scene – an indication of the potential. However, progress may falter without external support.

New financial ideas are not readily accepted, and rarely meet with success from the outset. This was true of the forerunners of the modern insurance companies – burial societies and mutual organisations – when they were first established in the mid-19th century in Europe. It was also true of microcredits, which only achieved the international distinction of a Nobel Peace Prize some 30 years after their introduction in the early 1970s. And the same is also true of microinsurance, an important complement to microcredits. Despite the fact that the number of schemes and insureds has doubled annually in the last few years, it is still on a very low scale.

According to the MicroInsurance Centre's Landscape report, at the end of 2006, fewer than 3% of the poor in the world's 100 poorest countries had access to insurance. However, thanks to the clever strategy employed by the CGAP Working Group on Microinsurance, set up in 2002 and co-organiser of the annual International Microinsurance Conference with the Munich Re Foundation, the issue attracted more attention in 2007 than ever before.

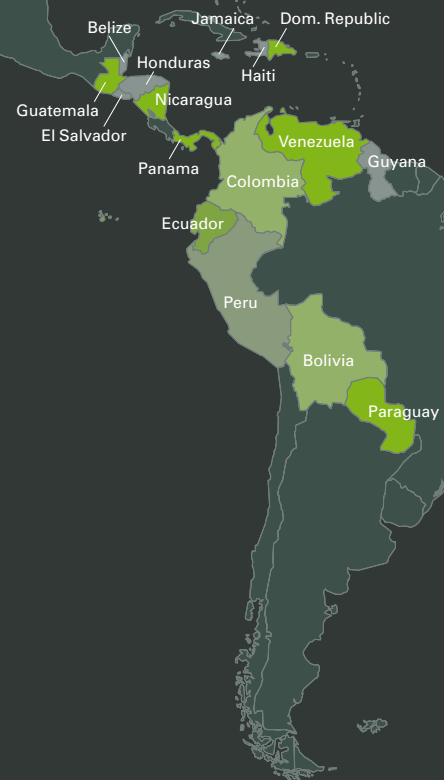
The 60-strong CGAP Working Group, chaired by the International Labour Organization's Craig Churchill, is the main source of expertise worldwide. It has produced groundbreaking case studies and publications, including "Protecting the poor", published at the end of 2006 and now established as the standard reference work on microinsurance. The working group has also published performance indicators and donor guidelines for potential financial backers and sponsors. Furthermore, together with the International Association of Insurance Supervisors, it succeeded in putting microinsurance on the agenda of the regulatory authorities in 2007. Another major step forward achieved at the end of the same year was that the Micro Insurance Academy of India became the first prominent educational institution to include microinsurance on its syllabus.

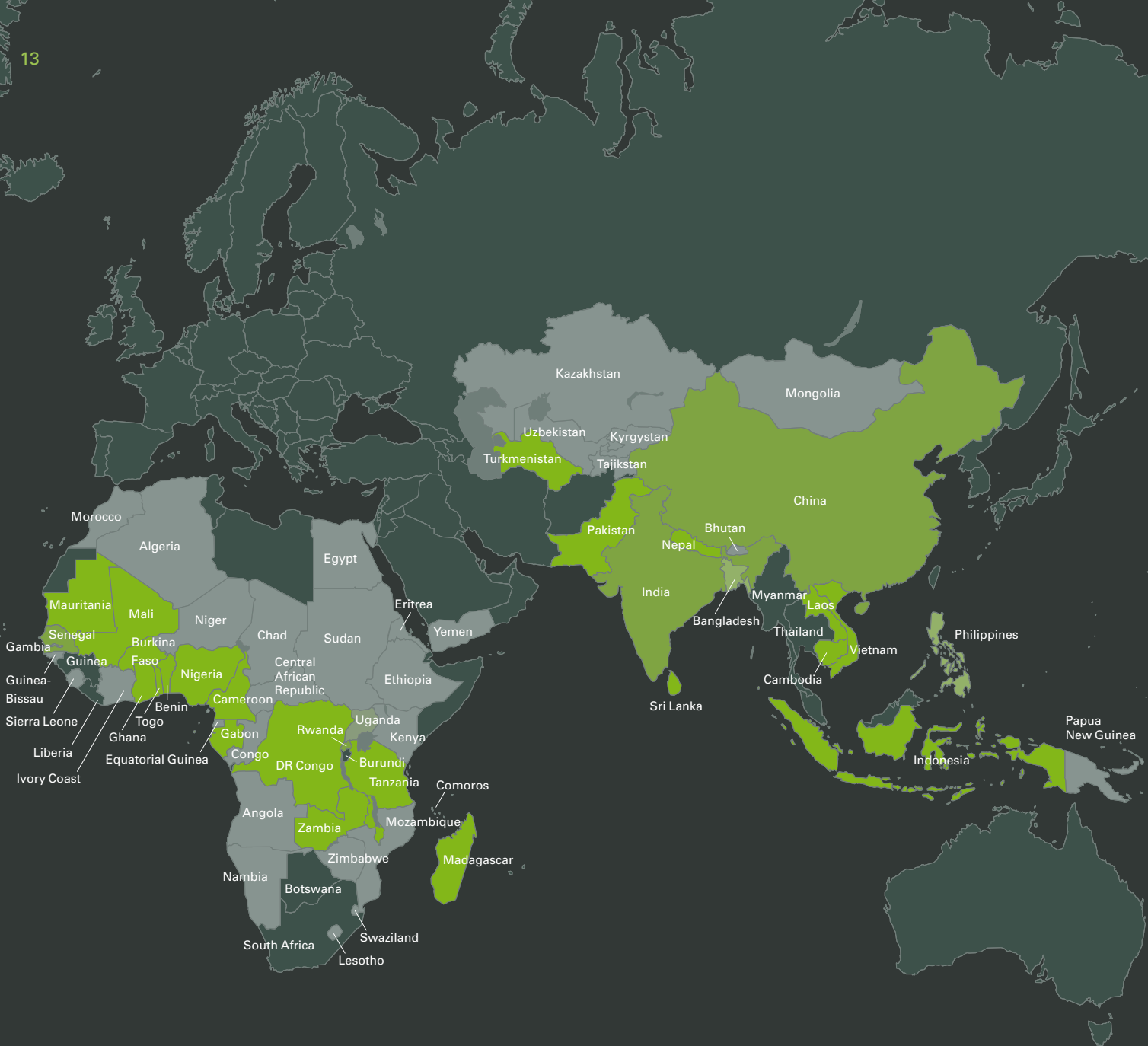
However, the pace of development would be slow if adequate resources were not available. The German Agency for Technical Cooperation (gtz), an international development aid organisation, has assumed a leading role, backing CGAP Working Group projects since 2002. The Bill & Melinda Gates Foundation has also emerged as a major sponsor. Over the next few years, it will provide funding of several hundred million dollars in support of a number of projects, including the Microinsurance Agency, an organisation which will act as a broker, providing micro-insurance for some 25 million people in the next five years. The Gates Foundation also supports the Microinsurance Innovation Facility, set up by the CGAP Working Group to provide start-up capital, technical and research backing for viable new microinsurance projects.

Commercial insurers are also taking a growing interest. Swiss Re, Munich Re and insurance companies such as Allianz and Zurich Financial Services are entering this potential growth market. Life and health insurance continue to attract most interest, but property and agricultural covers are becoming more common. US insurer AIG already has over 1.5 million customers in Uganda and has established a joint venture with India's TATA insurance company. It is expected to have more than 100,000 new customers by 2008 and as many as a million altogether by 2012. Given the growth opportunities, there are legitimate expectations that further commercial players will appear on the scene as the sector gathers momentum.

Microinsurance is also attracting attention on the investments front. For instance, Leapfrog Investments, a UK company, has plans to canvass support for such projects among institutional investors in the near future.

The current trends are exciting. To ensure that the schemes will also work on a larger scale, the various players – people at risk, governments, donor and aid organisations, academics and insurers – will have to work even more closely together. The Munich Re Foundation will maintain its efforts and continue to provide a platform for this important issue until microinsurance has outgrown its niche.





Microinsurance on the advance

In India and China alone, there are nearly 60 million microinsurance contracts. At current growth rates, the number of contracts will rise above all in South America, but the situation is also starting to look more promising in Africa, starting with Uganda.

Percentage of poor without microinsurance

- No data
- 62–90%
- 90–94%
- 94–98%
- 98% +

Asia

India	30,111,690
China	28,319,100
Bangladesh	4,488,820
Philippines	1,599,603
Indonesia	221,000
Sri Lanka	159,226
Nepal	147,464
Vietnam	85,621
Pakistan	70,000
Cambodia	8,784
Laos	7,600
Turkmenistan	—

Africa

Uganda	1,618,236
Senegal	616,604
DR Congo	304,350
Rwanda	284,000
Cameroon	126,861
Ghana	114,000
Benin	81,434
Mali	75,212
Zambia	64,000
Burkina Faso	35,429
Togo	15,908
Tanzania	6,000
Comoros	3,600
Mauritania	3,000
Nigeria	2,725
Gabon	2,500
Madagascar	937

Latin America

Peru	4,091,292
Colombia	2,559,000
Ecuador	551,422
Bolivia	250,000
Guatemala	105,600
Panama	62,000
Paraguay	42,000
Nicaragua	29,035
Venezuela	23,375
Dom. Republic	525

Source: Microinsurance Centre, 2007



Indian Finance Minister
Sri P. Chidambaram
opens the conference.



More than 300 participants from 50 countries took part in more than 20 working groups and discussions dealing with the latest developments.

Third International Microinsurance Conference Growth through microinsurance

Over 300 microinsurance experts and practitioners from more than 50 countries attended the third International Microinsurance Conference in Mumbai in mid-November 2007 to discuss the latest trends and developments in insurance products for the poor. One of this year's main themes was the regulatory parameters necessary to help microinsurance achieve a breakthrough.

According to a MicroInsurance Centre survey, nearly 80 million people in the world's 100 poorest countries – 85% of whom in Asia – are insured. In absolute terms, the number of microinsurance clients seems very high but it actually amounts to a mere 3% of the world's poor. Experts from the Indian Insurance Regulatory and Development Authority (IRDA) estimate that, in India alone, the number of potential microinsurance customers is 250 million.

"It is obvious that wealth does not percolate down to society's poor", said Indian Finance Minister, Sri P. Chidambaram in his opening speech. "While growth is the best antidote to poverty, governments must now turn their attention to those who are at the bottom of the income pyramid." The Microinsurance Conference, now the sector's principal annual convention, offered a suitable forum for this.

More than half the population of India, continued the Minister, had no access to banking, let alone to insurance products. The Minister was convinced that "addressing this issue is as important as focusing on growth". Against this background, India was an ideal country to host the conference, particularly in light of its unique regulatory environment: commercial insurers are required by law to offer cover to low-income households, with the result that over 30 million low earners are insured.

The doubling of the number of participants compared with the 2006 conference in South Africa, was particularly gratifying. The significance the topic has now acquired is also apparent from the fact that almost one in three conference delegates came from a private insurance company. Furthermore, it differed from similar conferences in that all the stakeholders were represented – governmental and non-governmental organisations, insurers, actuaries, and academic researchers. The intense discussions this engenders will help microinsurance make a huge step forward.

Apart from looking at new ways of reducing administrative costs and developing insurance solutions for agriculture and dealing with natural catastrophes, participants also focused on the issue of optimum regulatory parameters. "We need the support of politicians to drive microinsurance forward", stressed Michel Flamée, Chair of the Executive Committee of the International Association of Insurance Supervisors. He praised India's pioneering role in this area, but went on to say that the regulatory framework must not only take into account the special features of microinsurance business, but also avoid putting traditional insurers at a disadvantage.



Panel experts (from left to right): Roberto Junguito (Colombian Insurance Federation, Fasesolda), José Carlos Gomez (Peru's banking and insurance supervisory authority, SBS), Jeremy Leach (South Africa's FinMark Trust) and Arup Chatterjee (International Association of Insurance Supervisors IAIS).

Insurers were concerned they would lose their existing distribution networks, which depend on cooperatives and NGOs, if these were also allowed to offer microinsurance solutions. Mr. Flamée advocates splitting the market: "It might make sense to allow different insurers to service different market segments." For example, many developing countries had insurance cooperatives that were ideally placed to offer policies for low earners.

C. S. Rao, Chairman of the IRDA and co-organiser of the conference, underlined how important it was to develop tailored and affordable products. "Low earners often live in high-risk areas and are exposed to many perils. They are far more susceptible to illness, accidents and disability", he warned. Insurance was a key tool that helped people live with such risks and safeguard hard-won development gains.

The conference again showed what high expectations people have of microinsurance. Furthermore, since global warming is having a major impact in India as in many other countries, the debate about adaptation strategies and insurance cover will intensify. Thomas Loster, Chairman of the Munich Re Foundation, who hosted a panel on microinsurance in agriculture: "Agricultural insurance in particular will see a lot of new solutions".

For conference organisers Craig Churchill (member of the International Labour Organization and Chair of the CGAP Working Group on Microinsurance), and Dirk Reinhard (Vice-Chairman of the Munich Re Foundation), the Mumbai conference was a complete success: "Over the three years of this conference, we have seen drastic changes. The level of discussions has gone from general overviews of isolated cases to much more detailed and technical analyses of a range of experiences."

We thus look forward with eager anticipation to the next conference, which will take place in Cartagena, Colombia, in 2008. As with the Mumbai conference, a steering committee will select topics tailored to the requirements of an international forum. The discussions in Cartagena will focus on training, more effective processing technologies and innovative solutions beyond life and health insurance.

For further information on this issue:

Microinsurance Conference
www.microinsuranceconference.org

CGAP Working Group on Microinsurance
www.microinsurancefocus.org

IRDA
www.irdaindia.org



During the climate summit in Bali in December 2007, protesters drew attention to the ongoing clearance and exploitation of the rain forest.

Climate change and justice

Industrial nations and their carbon debt

Whilst it is the industrialised nations that bear the main responsibility for climate change, poor people in developing countries suffer most from its consequences. They are especially vulnerable and have least opportunity to adapt. This inequity in the distribution of benefits and burdens raises the question as to how to bring about a balance. The aim of one of the Munich Re Foundation's projects is to formulate recommendations for an ethically responsible climate policy.

The industrialised nations' economic prosperity is largely dependent on the use of fossil fuels such as coal, oil, and gas. It has become increasingly clear in recent decades that the heavy use of resources is taking its toll on the atmosphere and that industrial nations have a significant impact on world climate. The developing countries are also asserting their right to use fossil fuels – and thus the atmosphere – to boost economic growth.

Up to now, the climate change debate has largely neglected the injustice issue and the conflicts arising from it. To address this inequity, the Munich Re Foundation and the Catholic relief agency MISEREOR have now commissioned a study to be conducted by the Potsdam Institute for Climate Impact Research (PIK) and the Institute for Social and Development Studies (IGP) at the Munich School of Philosophy. The purpose of this study is to put the war on poverty on a new, scientific footing in these times of climate change.

The study is intended to prove the strong interaction between poverty and climate change, two phenomena that the general public too often perceives even now as separate problems. For ethical reasons, climate policy must ensure that the poor are not worse off than before the effects of climate change and that existing inequities do not become even greater.

A unique aspect of the "climate change and justice" project is interdisciplinary cooperation: each project partner brings its particular brand of expertise to bear in key areas. As a result, common factors that are usually overlooked when individual aspects are considered in isolation become apparent. The project partners not only take stock of the situation, they also make concrete recommendations for an ethically responsible climate policy and then present them for public debate.

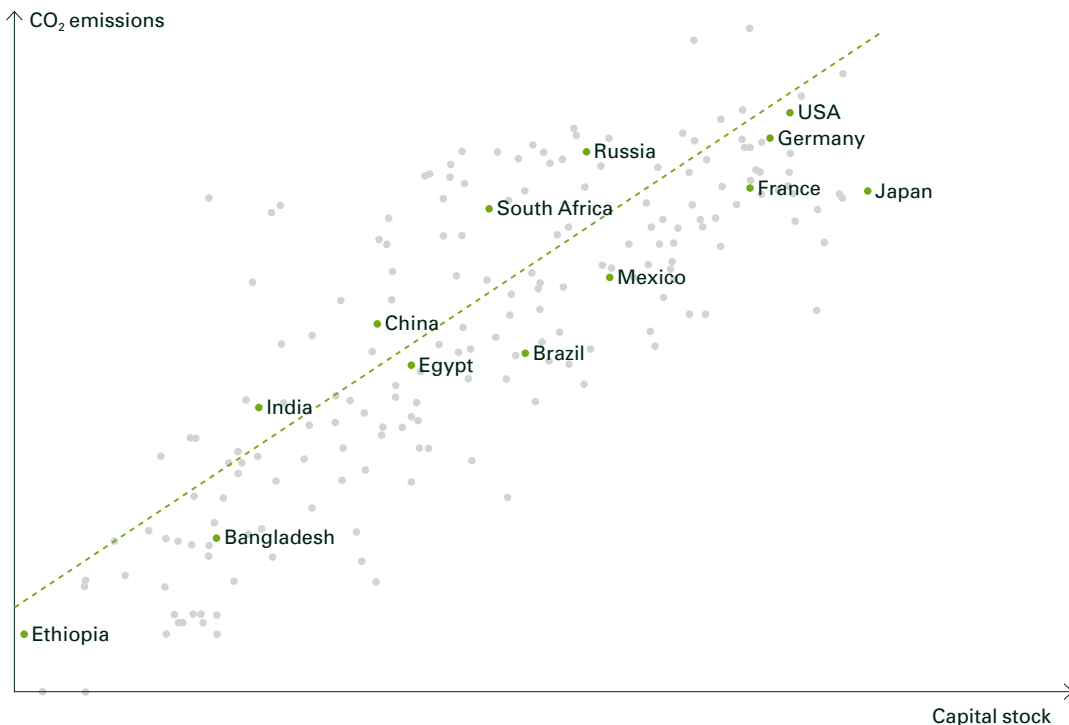
17 The consequences of global warming are often devastating for the poor because they are so vulnerable. They live in climate-sensitive areas subject to economic and ecological pressures and are unable to alter their lives or use of the land by their own efforts alone. Not only does climate change have a long-term adverse effect on their living conditions, it also threatens to undo any progress they have made thus far. Initial estimates indicate that, to mitigate these negative consequences, tens of billions would be needed by way of additional investments. Dr. Ottmar Edenhofer, chief economist at the Potsdam Institute, therefore concludes that wealthy countries have a carbon debt towards the poor since they have knowingly accepted that their prosperity could result in climate change. All industrial nations must radically reduce their emissions and, at the same time, clear the path to low-carbon development for the poorer countries. Technical innovations that increase energy efficiency help to keep the economic cost of the adaptation process to a minimum, as do renewable energies. Edenhofer therefore advocates a corresponding technology policy, the introduction of worldwide, cross-sector emissions trading and the development of an adaptation fund.

The disadvantaged in developing countries are running out of time and need rapid assistance. This is where insurance solutions come into play. They are central mechanisms in a world of accumulating risks. In the climate debate, they are assuming an increasingly important role under the heading of adaptation. Novel concepts tailored to the special conditions of nascent insurance systems or markets reduce the risk borne by the individual. After all, it is mostly low-income families that are being plunged further into poverty by economic crises, often caused by weather-related natural catastrophes, disease or death.

Microinsurance and meso-scale approaches hold particular promise, as they are available to several million people at once. In Ethiopia, a new type of cover was introduced in 2005 that insures more than 15 million farmers against drought, and in Malawi farmers protect themselves against crop failure through micro-financing and microinsurance based on a rain index. In Mongolia, where 80% of farmers live off livestock breeding, a livestock microinsurance cover has recently become available, which helps the rural population to get back on its feet following losses sustained through drought and harsh winters.

For further information on this issue:

Climate change and justice
www.climate-and-justice.de



Onus on the rich countries

There is a strong correlation between a country's wealth measured in terms of its capital stock and its CO₂ emissions. The graph gives a logarithmic representation of the data for selected countries and their statistical context, calculated using a regression line.

Source:
 Hans-Martin Füssel, PIK, 2007

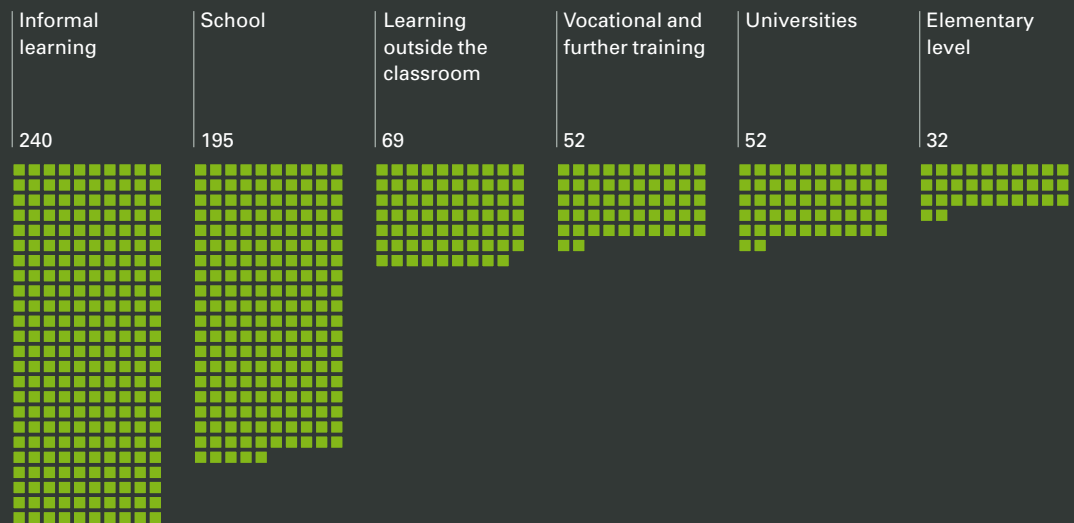


Children explore the world of nature: the theme of Germany's UN Decade is the establishment of an alliance for the learning of sustainability, the aim of which is to persuade young people to support sustainability early on by using imaginative and creative ideas.

Education themes for the UN Decade projects

Up to now, most Decade projects have focused on informal learning and schools (factors may be counted under more than one heading; as at November 2007).

Source:
UN Decade – German branch,
2007



Think globally – Act locally

Prof. Lenelis Kruse-Graumann

Although launched by UNESCO only in 2005, the UN Decade of Education for Sustainable Development, which runs until 2014, has already yielded valuable impulses likely to last beyond the end of the decade and influence more than educational policy alone. The important topic of education for sustainability has thus been given extra weight and is generating ever greater interest.

During the Rio Conference of 1992, sustainable development was declared the normative guiding principle for the 21st century. This concept calls for a balance between environmental preservation and economic growth whilst at the same time not depriving present or future generations of their opportunities. And education is deemed an important component in bringing about a change in mindset and lifestyle.

However, it was not until the UN General Assembly adopted a resolution establishing a Decade of Education for Sustainable Development that the sustainability debate really got under way. As a consequence, education is considered a key political tool for promoting sustainable development – as important as the trade in CO₂ certificates and the development of energy-efficient technologies.

In Germany, the UN Decade is being coordinated by a National Committee comprising some 30 experts from politics, the world of science, the economy and various non-governmental organisations. The Committee has drafted a national action plan combining the activities and backgrounds of the various players involved. It aims to place education on a new and wider footing, extending well beyond the confines of school, and integrating the many aspects of life in which sustainability plays a role (consumption of goods, money and finances, conservation of biodiversity).

In this regard, the awarding of Decade projects has proven to be an effective instrument, and the participants that carry out such projects range from student and youth groups to associations and communities. Exemplary initiatives are thus thrust into the limelight, a fact that not only increases the participants' motivation but also raises the odds that they will be granted added funds. On the occasion of the Decade Week in November 2007, hosted by the state of Baden-Württemberg, North Rhine-Westphalia's State Initiative on New Learning achieved the distinction of being granted the 500th Decade Project Award. The large variety of projects undertaken, which also include artistic activities, thus adds meaning to the well-known slogan "think globally – act locally".

Although the UN Decade can be considered a success, it is important that we do not let up in our efforts. After all, sustainable development is not yet fully understood as a process centred on issues of intra- and intergenerational justice and quality of life. Moreover, the training and educational opportunities offered in the area of development policy should take greater account of ecological conditions and consequences.

Education for sustainable development is a lifelong process. The German UN Decade, which has chosen the alliance for the learning of sustainability as its theme, seeks to loosen the topic's close association with formal institutions such as schools. Sustainable behaviour is not an inborn trait but a skill that needs to be acquired from early childhood and consolidated by culture and society in a variety of different learning environments, with re-education receiving just as much attention as first-time learning.

Our own motto "From Knowledge to Action" strikes a chord in this context. The process behind it is complex, however, and ultimately involves breaking established behaviour patterns and affording as much consideration to the knowledge and values of those affected as to the spatially tangible and social context in which those patterns can be changed.

The UN Decade of Education for Sustainable Development will not draw to a natural close in 2014 as planned. Rather, it is to be seen as a first step towards developing vital tools for promoting sustainable development in a learning society.

The UN Decade of Education for Sustainable Development addresses 30 different issues, including the fight on poverty, environmental protection, water and migration. More than 120 Decade projects concern climate change and the environment.

More than 100 million children worldwide do not have the opportunity to attend school.

More than 850 million people throughout the world are illiterate, of whom 98% live in developing countries and 64% are women.

A number of German cities, including Hamburg, Bonn and Heidelberg, are also supporting the Decade with projects concerning energy conservation, one-world and local public transport projects.

Prof. Lenelis Kruse-Graumann is an Honorary Professor at the Psychological Institute of the University of Heidelberg, and Vice-Chairman of the Baden-Württemberg Council on Sustainable Development. The focal points of her research include environmental psychology, environmental awareness and the social psychology of language.

Inadequate learning conditions in Jakarta: the UN Decade aims at better education opportunities for all, to teach people behaviours that will assure them a viable future.



 go!clean school competition

Green entrepreneurship

It was enough to gladden the heart of any economics minister. Some 70 pupil-run companies showed true entrepreneurial spirit and creativity with the highly original business ideas they submitted for the go!clean eco-project competition. The event, the brainchild of the Munich Re Foundation and the Zeitbild Stiftung, was held under the patronage of the German Federal Minister for the Environment, Sigmar Gabriel.

Pupil enterprises are projects in which young people design, produce and sell their own products or provide a service. Although the businesses do not have to be registered and limits are set on turnover and profits, the young entrepreneurs strictly adhere to the rules of the real business world. Like their role models, they work according to a definite company structure, commercial responsibility being assumed by teachers and pupils. The school teams transact company business both during and outside school hours.

The go!clean competition focused on projects that are based on sustainability ideas or further the cause of climate protection. The spectrum of green business ideas includes "designer" watches made of recycled materials, high-precision data loggers to measure the temperature – aimed at helping to cut school heating bills – and a Solar AG, a company that sells power generated on the school's roof to the local municipal works.

The awards for the best ideas were presented during "ECOTEC 2007 – The Knowledge Market for Environmental Technologies" in Essen on 1 June 2007. This is a prominent venue, which was also attended by EU environment ministers. The six prizewinners each received €500 and the overall winners, the Blue Angels ("Die Blauen Engel") of the Nelly Sachs Secondary School, received an additional special prize of €500.

The Blue Angels seek to promote environment-conscious actions in school and at home by selling recycled materials and brochures and providing a consultancy service on energy conservation.

The Blue Angels had not expected to win: "Being newcomers to the field, we were really surprised when we won first prize – particularly since a lot of pupil enterprises have been doing a fantastic job for a long time now. During the last three months we have invested a lot of time in making sure the business plan, articles of association and application documents would be ready on time."

Prior to the awards ceremony, information workshops were held on the subject of school enterprises and the environment, and an exhibition on pupil-run businesses gave tips and ideas for start-ups.

At the ceremony, Thomas Loster, Chairman of the Munich Re Foundation, commented: "I am pleased to see that pupils realise there are very profitable business opportunities in environmental protection. It is important to anchor the concept of ecological and economic responsibility early on. We will only bring about the necessary change in society's mindset if we can get young people to support the idea. That was the main objective of the go!clean competition." The Munich Re Foundation will continue to sponsor competitions for school pupils in Germany in the future, and thus help ensure that a major target group supports the idea of sustainability.

Further information
on this issue:

go!clean
www.go-clean-award.de



Julia Großbach (right), Managing Director of pupil enterprise Watch Out, based at the Schulze-Delitzsch school in Wiesbaden and her colleague Christine Kone model designer watches made from recycled materials.

Kristian Katzmarek, one of the Frechen Grammar School's Sunworker team members proudly displays their best-seller: a solar-powered radio.

Interview

"The money will be ploughed back into the company"

Ulrich Wehres, Managing Director of the Blue Angels

Hello, Ulrich, how's business?

It's still early days. To reach more potential clients we need to raise our profile.

What obstacles do you most frequently encounter?

The biggest problem is convincing older pupils that using large quantities of paper is a major environmental issue and that it's important to buy recycled exercise books. Our aim is that, in two years' time, virtually all pupils will be helping to protect the environment by using exercise books made of recycled paper.

How will you spend the prize money?

The money will be ploughed back into the company, and initially used to finance class exercise books to be introduced throughout the school. In the longer term, we also plan to use some of the money to buy new, energy-saving meters.

Carsten Onkelbach, a Blue Angels employee

I joined the school enterprise mainly because I think it's important to do as much as possible to protect the environment. Since I'm good at figures, the job of cash auditor was just right for me, and it's something I really enjoy doing. What I especially like is working with the other pupils because everyone's really keen and it's good fun.

And the winners of the first prize are ... the Blue Angels.





Martin Fliegner (right), Geoscopia environmental expert, "in full flight". Staff and pupils are amazed by his fascinating commentaries on the satellite images.

Student project "Climate expedition"

Fresh from orbit – Education in climate protection

Germanwatch and Geoscopia bring views of earth from space to the classroom. Rather than trotting out dry theory, educators from the renowned environmental and development organisation acquaint students with the subject of climate change using live satellite imagery. The Munich Re Foundation has supported the project since 2006.

To raise pupils' awareness of climate change, Geoscopia has organised more than 200 project days at secondary schools in the last few years. Although the project days are mainly held in North Rhine-Westphalia and Bavaria, visits to schools in other federal states are also possible on request.

The climate expeditions use live satellite images beamed from space straight into the classroom. Not only do they show weather phenomena, they also illustrate the consequences of environmental and climate change, for instance through historical comparisons of what glaciers in the Alps, in Greenland or on Mount Kilimanjaro looked like 15 years ago versus today or through images of the clearing of the rain forest. The climate expeditions are not intended to paint a bleak picture of doom but to point out what can be done to avert disaster, namely by tapping alternative sources of energy, driving in an environment-conscious manner or using energy-saving lamps.

The expedition projects are popular among students, and their responses have been positive across the board. "It is much easier to understand live images via satellite than a teacher at the blackboard", said Nina-Christin Lübbers, who attends the Graf Bernhard Realschule, a secondary school in the town of Lippstadt-Lipperode. "The explanations were so fascinating that I couldn't help paying attention", agreed her classmate Nina-Vienna Wissing.

The pupils' active participation in the search for solutions proves that Geoscopia's experts have hit the right note. Teachers are given additional comprehensive material allowing them to probe further into the subject of climate change during their regular lessons. If interested, pupils can also receive training as climate ambassadors. Climate expeditions are thus an ideal platform for motivating young people to protect the climate and save energy. "During the following lesson, our pupils engaged in a lively discussion of the dramatic effects that a minor change in climate can have", added Ingrid Peek, senior biology teacher at the Graf Bernhard secondary school.

The project has inspired both teachers and students alike. They are hoping the climate expedition will stop by again, and have already made provisional arrangements for next year's classes. The initiative was officially recognised as a project of the UN Decade of Education for Sustainable Development. In the course of 2007, projects in Rhineland-Palatinate and Hamburg were declared eligible for support. Other federal states have also submitted requests. In North Rhine-Westphalia, the state in which the climate expeditions were launched, no financing has yet been secured, although demand remains high.

Illuminating insights

Martin Fliegner is one of the Geoscopia educators enthralling classes with satellite images from space. He takes us on one of his expeditions.

There's the Blue Planet, in colour and live from a height of 36,000 kilometres. Massive storm clouds are gathering over the Equator (1). We follow them from Africa across the Atlantic all the way to the Andes and then zoom in on the green landscape of western Brazil. But is it really still completely green? No. The rain forest has partly been cleared and clouds of smoke are billowing up. The cleared areas (2) will be used to raise cattle or plant soya and oil palms in an attempt to satisfy our hunger for cheap meat and biofuel.

We return via satellite to central Africa, where the Sahel zone marks the boundary between the dry yellow-brown desert and the remaining rain forest. On the border between Niger, Nigeria, Cameroon and Chad lies Lake Chad. A black-and-white photo from 1963 shows how huge it used to be: the German state of Mecklenburg-West Pomerania would have fitted into it twice over, with room to spare. On another picture taken in 1973, the lake has already shrunk and it is hard to identify on a 1987 photo. Current images show the lake as a mere shadow of its former self – it is now only about as big as the city of Berlin (3).

Similarly, the once gleaming glaciers of Mount Kilimanjaro are all but gone now (4). Far to the East, the Himalayas hove into view. Here, too, the glaciers are dwindling (5). And the situation in our immediate surroundings is not much better: although our Alpine glaciers still glitter white on the satellite images, a comparison with a photo taken of Pasterze, Austria, in 1900 shows that the snow and ice have already receded significantly.

Melting glaciers, rising sea levels – the first thought that comes to mind is: How will the Netherlands cope? A view from 700 kilometres above the earth quickly reveals, however, that it is possible to adapt to the change, given sufficient funds – with dams built to withstand rising sea levels (6). On the opposite side of the globe, not far from Australia, the satellite captures a small group of islands (7). This picture-book world is in jeopardy, because it lies just a metre or so above sea level. Unlike the Dutch, the islanders do not have the necessary means to build complex dams – will the islands therefore soon be lost forever?

Even at night, the climate expedition provides illuminating perspectives. Countless points of light dot the northern hemisphere skies, whereas the southern hemisphere is largely shrouded in darkness (8). Is it fair that roughly 25% of humankind consumes 75% of the earth's energy and that the poorer countries of the south bear the brunt of increasing greenhouse gas emissions?

Further information on this issue:

Geoscopia
www.geoscopia.de

Germanwatch
www.germanwatch.org



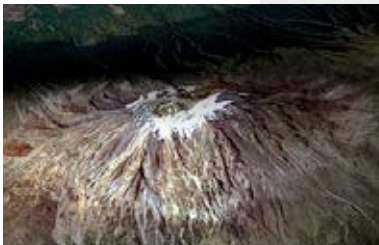
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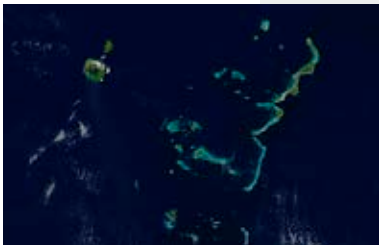
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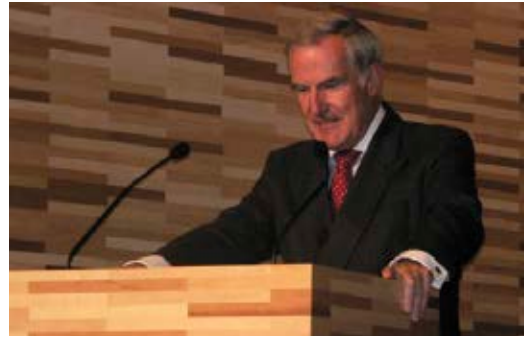
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The first in the new series of dialogue forums attracted a large audience.

Dr. Hans-Jürgen Schinzler, the Chairman of the foundation's Board of Trustees, delivers the opening address.

Christian Ude, the Mayor of Munich (left), and futurologist Dr. Karlheinz Steinmüller (right) discuss ideas relating to big city life with moderator Dr. Patrick Illinger.



"Munich 2030" dialogue forums

Cities are the workshops in which the future is wrought

What will life be like in major cities in 2030? This is one of the topics the Munich Re Foundation is exploring in its series of dialogue forums. At the first event early last November, attended by an audience of 140, Munich's Mayor, Christian Ude, and futurologist Dr. Karlheinz Steinmüller outlined their ideas on what life would be like in the large cities of the future.

"Why bother looking ahead to the future?", asked the Chairman of the Board of Trustees, Dr. Hans-Jürgen Schinzler. After all, Munich was an economically successful and enviably beautiful city where anyone would want to live. However, even Munich would be unable to escape the less encouraging trends: migration, poverty in old age, educational crises and climate change presented enormous problems for all cities in the next few decades.

In view of forecasts, which are now over 20 years old, Christian Ude warned: "Simply extrapolating current developments would be foolhardy." In 1984, for example, nobody could have imagined that the Iron Curtain would fall and that the EU would include countries such as Poland and Romania. At the same time, the speed of globalisation had been significantly underestimated. The Mayor concluded: "When looking into the future, the best we can do is analyse the opportunities and risks."

His vision of Munich in 2030 was of a city that had excellent prospects of being among the globalisation winners. This would have a positive effect on companies and skilled workers, but would adversely affect the housing market and the less privileged. Secondly, Munich needed to react to irreversible demographic changes and consider how to integrate its ageing population into city life. Thirdly, the pressure of migration from outside would increase, as would the migration needs from within. Although being a workshop in which the future is wrought was a challenge the city could fail, it also gave Munich an opportunity to confirm its place at the top.

Steinmüller was also under no illusions as to the accuracy of the projections, adding, however, that "incorrect forecasts are necessary in order to do the right thing". Had it not been for predictions that Munich would one day be surrounded by mountains of waste, the city would certainly not have been so successful at getting to grips with its refuse problem. Both speakers agreed that Munich would be spared the fate of US-style suburbs. On the contrary, they envisaged the communities around Munich growing in a structured manner, ideally around the existing suburban rail (S-Bahn) lines. At the same time, increasing numbers of people had returned to the city in recent years, senior citizens, in particular, appreciating its more developed infrastructure, extensive range of cultural events and medical facilities.

Increasing social divisions in large cities were an important issue. Munich's Mayor is concerned that the process is likely to further intensify. For the city to retain its appeal, however, whilst it needed a creative scene with unconventional thinkers, ordinary service providers also had to be able to afford to live there. Highlighting the Domagkstrasse project, which provides affordable studios for artists, Christian Ude noted: "If we don't intervene, we will lose the creative milieu." Cities were also dependent on strong finances in order to be able to provide less well-off sectors, such as nurses, police officers or pensioners, with local authority housing. But the general level of rents was subject to market forces that even city councils could not override. For Steinmüller, keeping low-income service providers in the city was a matter of ongoing necessity: "The city needs to make sure it remains intact and keeps its public spaces", he stressed, continuing that fortunately – unlike local authorities in eastern Germany – Munich was privileged to be relatively affluent.

Nevertheless, the social divide between Munich's individual districts is still evident. Steinmüller explained that the discrepancy between perception and reality was sometimes striking. Hasenberg, for example, was actually not the trouble spot its reputation suggested, whereas lower profile areas like Ramersdorf threatened to slide further down the scale. The Mayor said he was pleased that a large number of prosperous companies and their employees were based in Munich. "But there are terrible displacement processes in which the elderly and underprivileged are being driven away from the areas they grew up in." He went on to say that the trend towards rising prices for desirable old buildings was, however, unstoppable, and living in the city could thus end up even more costly in 2030. The Mayor would do all in his power to counter this trend: "We will not be following Dresden in selling off local authority housing to investors."

Munich also faces major challenges where mobility is concerned. Steinmüller believed that traffic volumes would increase, and that more roads and new technologies such as telematics were not the answer to the problem. He expected the need for mobility to remain high, but demographic change would shift the focus of transport policy in favour of senior citizens. In his opinion, the key was a good public transport structure.

At the end of the event, it was clear why it is so important to obtain a picture of the city in 2030: cities take on the role of future workshops, exposing problems that only become apparent many years later in society as a whole. Christian Ude's example: "Munich's integration programme has been running for 30 years, but the German Federal Government did not convene its integration summit until 2006." Thus, if we know what Munich will be like in 2030, we will also have a good idea of the challenges globalisation, demographics and migration will create for society.

For further information on this issue:

Dialogue forums
www.munichre-
foundation.org

Wie werden wir in den Großstädten im Jahr 2030 leben?
Aufstiegsveranstaltung
Mittwoch, 7. November 2007
19 Uhr
Christian Ude
CS München und Präsident des Deutschen Städtetags
Dr. Karlheinz Steinmüller
Zukunftsforscher
Moderation aller Veranstaltungen:
Dr. Patrick Klingner
Lehrer des Regions Wissen, Südostdeutsche Zeitung

Sirbt München aus?
Spielplätze
versus Altersheim
Dienstag, 22. Januar 2008
19 Uhr
Dr. Rainer Klingholz
Direktor des Betriebsbüros für
Bevölkerung und Entwicklung
Dr. Elisabeth Mark
Stadtmedizinerin
Landeshauptstadt München

Arm in der reichen Stadt?
Gesellschaftliche Kohäsion
versus wirtschaftliche
Prezisierung
Dienstag, 21. Februar 2008
19 Uhr
Prof. Meinhard Miegel
Leiter des Instituts für Wirtschaft
und Gesellschaft, IWG, Bonn
Friedrich Gröbe
Leiter des Sozialerwerbs
Landeshauptstadt München

Wie lernt der München?
Bildungsarmut
versus Privatschulen
Dienstag, 11. März 2008
19 Uhr
Prof. Max Huber
Vizepräsident des DAAD,
ehemaliger Rektor
der Universität Bonn
Elisabeth Wald-Söllner
Schulärztin,
Landeshauptstadt München

**Münchner Riesling,
Jahrgang 2007**
Positive versus
negative Auswirkungen
des Klimawandels
Dienstag, 15. April 2008
18 Uhr
Prof. Hans Joachim Schellnhuber
Direktor des Potsdam-Instituts
für Klimaforschung
Joachim Lorenz
Leiter des Politikers für
Gesundheit und Umwelt,
Landeshauptstadt München

**Dialogforen
München 2030**

Wie werden wir im Jahr 2030 leben?
Welchen sozioökonomischen Wahrheiten müssen wir uns stellen?
Werden Spielplätze zurückgebaut,
um Altersheimen Platz zu schaffen?
Werden wir von Bildungsarmut
betroffen sein?

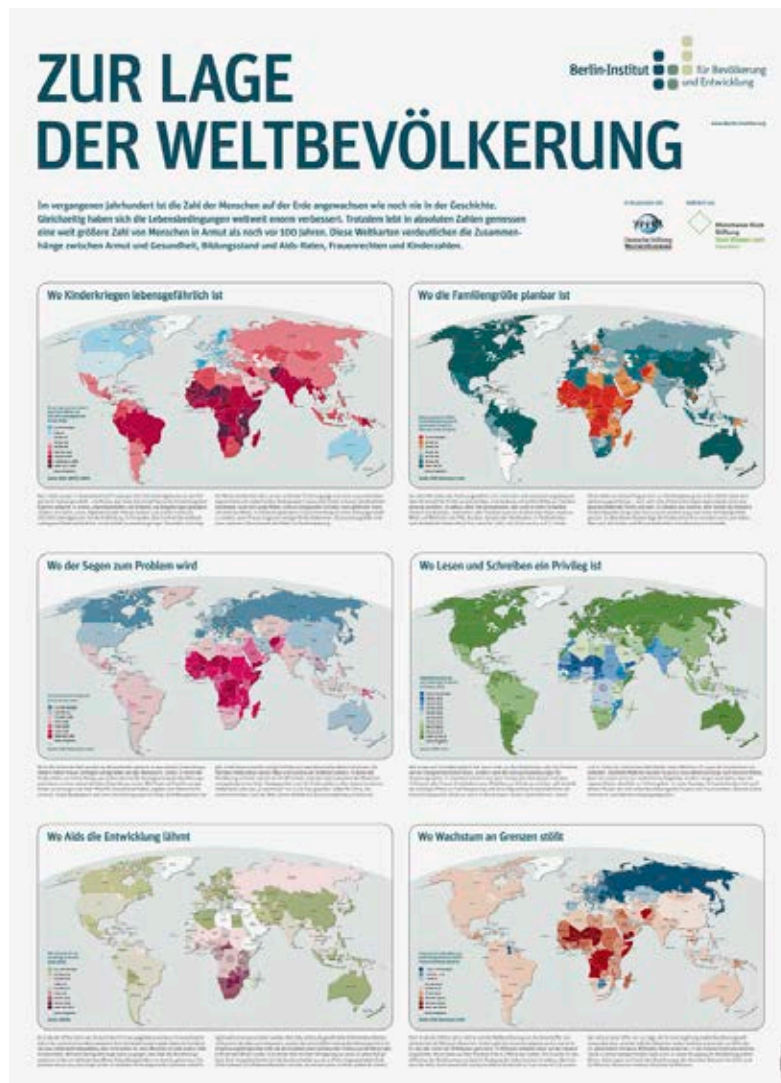
Und welche Maßnahmen müssen
ergriffen werden, um die zu
erwartenden Veränderungen zu
bewältigen? Dies sind nur einige
der Fragen, die an fünf Abenden
diskutiert werden.

Um Anmeldung bis
schonsten selbst. Teilnahme
ist kostenlos.
Dialogforen sind kostenlos.
Veranstaltungsort:
Münchener Rück Forum
Oldenstraße 19
80802 München

Weitere Informationen:
Münchener Rück Stiftung
Königsplatz 32
80333 München
Annette Böhm
Telefon +49 (0)89 39 91 89 88
Fax +49 (0)89 39 91 72 94
info@munichre-foundation.org
www.munichre-foundation.org

Münchener Rück
Stiftung
www.wissen.zum
lernen

Poster advertising the
"Munich 2030" dialogue
forums.



Population development

Facts behind the global situation

The 20th century witnessed unprecedented population growth. Although living conditions worldwide have improved enormously, in absolute terms the number of people living in poverty is much higher today than it was 100 years ago.

All the more reason for us to produce a poster in collaboration with the Berlin Institute for Population and Development and the German Foundation for World Population. The poster features six world maps illustrating the links between poverty, health, education standards and AIDS infections, women's rights and numbers of children.

It shows, for example, that mothers in some African countries have a 1,000 times higher risk of dying during childbirth than their Swedish counterparts, and that the majority of women are unable to read in a number of countries on the African continent because girls are not sent to school.

Today, the world's population has reached almost 6.7 billion, and is increasing at the rate of around 80 million per year. Population growth is almost entirely confined to the developing countries, where people are living in dire poverty. Their future and the future of mankind as a whole is largely determined by decisions taken now.

World Water Week Stockholm 2007

Climate change strategies

At the first Water and Climate Day, held on 15 August 2007 as part of the World Water Week in Stockholm, more than 150 experts gathered to discuss strategies for helping the developing countries adapt to climate change. The event was hosted by 13 organisations in all, including the United Nations Framework Convention on Climate Change (UNFCCC), the European Commission, the German Federal Ministry for the Environment and the Munich Re Foundation.

Prof. Zbigniew Kundzewicz, author of the chapter on water in the IPCC report, did not doubt that “climate change is already in full swing”. Although its effects on the overall water balance were not clear, the number of people facing a water shortage was likely to have risen to 3.2 billion by 2080 – almost double the current figures. This will have major economic consequences, and not only for the developing countries. In Spain, hydro-electric energy supplies will dwindle and the levels of many rivers, including a number in central Europe, are expected to fall, causing serious problems for shipping.

Dr. Fulco Ludwig of the Netherlands-based Cooperative Programme on Water and Climate was critical of the fact that very few development plans took the effects of climate change into account. However, in some countries such as Chad and Mozambique, a close link had been identified between economic strength and rainfall. Prof. Bogardi of the Institute for Environment and Human Security at the United Nations University in Bonn also warned that development cooperation tended to overlook climate change: “Africa is one of the most vulnerable regions.” Studies had shown that up to 50% of current projects were either threatened or likely to be curtailed by climate change.

Participants at the Water and Climate day therefore appealed to those responsible to formulate strategies that looked beyond 2015, the time-frame for the Millennium Development Goals, and to ensure projects remained viable despite climate change.

Other funding activities 2007

“Passagen”: German Council for Sustainable Development exhibition comes to Munich

With the support of the Munich Re Foundation, the “Passagen” exhibition, organised by the German Council for Sustainable Development, was brought to Munich. The exhibit was shown on the sidelines of a CSR film series and explores the theme of sustainability. The event was hosted by the Munich Initiative CSR (MICSR) – Companies assume responsibility.

Environmental education in Thuringia

The educational project “Water – A life-giving element” organised by Thüringer Ökoherz e. V. focuses on protecting our environment and resources and on sustainable management. Its objective is to make children and young people, the up-and-coming generation, more aware of the importance of water and to increase their environment consciousness. The foundation is providing financial support.

Courses on foundation concerns

Again last year, the foundation organised courses for teachers and journalists featuring presentations on climate change, water as a resource, disaster prevention and development policy. Courses were also held in schools and official agencies.

For further information on this issue:

German Council for Sustainable Development
www.nachhaltigkeitsrat.de

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Selling indulgences for a good cause

Thomas Loster

Climate change leaves its deepest mark on the lives of the people least able to protect themselves. Accordingly, in recognition of its environmental responsibilities, the Munich Re Foundation is sponsoring a project in Eritrea to replace traditional clay stoves with new and more economical models as a way of offsetting unavoidable CO₂ emissions. This not only saves energy but also brings a lasting improvement to the standard of living of the local population.

A long time ago, it was possible for perjurers to shorten their time in purgatory by handing over the sum of eight ducats. For murderers, the rate was slightly higher. The practice of selling indulgences flourished in the early 15th century, but late medieval socio-economic processes reduced it to the level of financial machinations. However, the concept is now back in vogue. Critics dismiss emissions trading as the equivalent of seeking remission for carbon debts. They argue that a zero CO₂ balance in mathematical terms cannot put a stop to climate change, and that schemes such as emissions trading simply allow us to carry on as before with a clear conscience.

There is no denying that increasing droughts and flooding are the direct consequence of global warming. It is evident that only a highly ambitious climate policy and swift action at individual level can curb climate change. This entails: 1. lowering energy consumption, 2. using as many sources of renewable energy as possible, 3. neutralising unavoidable CO₂ emissions by investing in certified climate protection projects.

Since all emissions are released into the same atmosphere, where the greenhouse gases are produced and where they are cut is irrelevant for global climate protection purposes. International agreements have been based on this argument for some time and the principle is now being applied on a voluntary basis also. Each and every one of us is responsible for slowing down climate change. For the foundation, this means that unavoidable emissions, due for example to office work, business trips or foundation events, have to be neutralised through investment in climate protection projects.

Munich Re Foundation CO₂ emissions in tonnes

The Microinsurance Conference 2007 (Mumbai) attracted almost twice as many participants as in the previous year. This resulted in an increase in CO₂ emissions of 55%.

Source: Munich Re Foundation, 2007



	2006	2007
Events		
Microins. Conference	505	921
Summer Academy	100	90
Dialogue forums	1	1
Business trips	78	56
Foundation office	17	20
Total	700	1,088

The first stage is to add up the greenhouse gas emissions. These came to almost 1,100 tonnes of CO₂ in 2007, the bulk of which, 1,000 tonnes, was accounted for by international conferences. The increase over 2006 was primarily due to the 2007 Microinsurance Conference, which had attracted far more participants than the previous year's event. By comparison, office activities (electricity and heating) accounted for only 20 tonnes.

In keeping with the work of the foundation, we are supporting a project in Eritrea that offers a number of benefits: it improves the lives of the rural population and, at the same time, protects their health, the environment and the climate. People in Eritrea traditionally cook using mogogo stoves, which require large quantities of firewood. An improvement in the design of these stoves cuts the amount of firewood needed by half. As the use of the mogogo is deeply embedded in local culture, persuading people to change to the new models is no easy task. Our project promotes the venture by training local craftsmen, explaining to people how the stoves work and supplying vital accessories. By supporting the mogogo project, we aim to offset our 2007 emissions.

Besides cutting down on emissions, the project will bring health benefits, since many people suffer from respiratory and eye complaints due to faults in the design of the traditional stoves. Energy savings will be made and less time spent gathering firewood, thus helping reduce poverty in one of the world's least developed countries. At the same time, the scheme helps to slow the pace of deforestation in a country which has lost more than 50% of its forests in the past 40 years.

Obviously, climate-neutral products and services can be no substitute for our own climate protection efforts. Our actions must be based on a policy of avoidance, mitigation, and compensation. However, our scope for making reductions is limited by the fact that most of the foundation's CO₂ emissions result from international events, such as the Microinsurance Conference in Mumbai.

Although climate-neutrality projects can only be a second-best solution, they nevertheless make a worthwhile contribution by raising awareness of the impact of individual actions on the climate and providing funds for climate-friendly technologies. This makes it possible to realise smaller-scale programmes designed to make people's everyday existence a little easier, such as the Eritrea project. On those terms, we are more than happy to support the current trade in "indulgences".

Air traffic produces a number of different pollutants and exacerbates climate change in a variety of different ways. According to estimates, approximately 9% of the human-induced greenhouse effect is caused by aircraft.

Average CO₂ output per inhabitant is 11 tonnes per year in Germany, 20 tonnes in America and 2.7 tonnes in China.

Producing one kilogramme of beef is as detrimental to the climate as making a 250 km car journey.

The Kyoto Protocol's clean development mechanism (CDM) registered its 500th project in spring 2007: an 8.75 megawatt windfarm in Gujarat, India. The project is expected to reduce carbon dioxide emissions by some 15,300 tonnes annually. Meanwhile, there are another 1,000 or so CDM proposals in the pipeline.

Thomas Loster is Chairman of the Munich Re Foundation. He has been dealing with climate change and its effects for the past 20 years.

Picture licence expired

When the province of Sofala was struck by Cyclone Favio in February, more than 2,000 people living along the River Búzi were evacuated with their possessions to emergency centres.

Mozambique flood-warning system

Test passed with flying colours

The flood-warning system set up with the help of the Munich Re Foundation has passed its first major test. Despite severe floods along the River Búzi on 25 February 2007 following Cyclone Favio, the inhabitants of villages along the river were able to reach safety.

The Category 4 cyclone struck the Búzi area on the evening of 22 February, bringing strong winds and heavy rainfall that caused substantial damage. Daily rainfall readings in the villages along the river regularly exceeded 250 mm as the waters in central Mozambique rose rapidly. The lives of some 12,800 people were in danger, but they were well prepared. The district disaster-mitigation committee had alerted villages threatened by the flood waters two days previously, using radio and megaphone announcements to sound the alarm and order evacuations where necessary.

Despite initial resistance encountered, for instance in Mandiri, Guara Guara and Zindoga, it took less than two days to move villagers from the danger zones to a place of safety. Some 2,300 people were housed in emergency shelters, the district administrator acting as overall coordinator and main decision-maker.

By 25 February, low-lying areas along the River Búzi and parts of the district capital were under water. Roofs had been torn off by the cyclone and many dwellings destroyed. In all, four people were killed and 76 injured in Vilankulos (in the province of Inhambane). Had it not been for the warning system, the figures would undoubtedly have been much higher, previous floods having regularly claimed several hundred victims.

Mozambique's National Institute for Disaster Management (INGC) thanked the helpers and particularly commended the efficient warning system. The Munich Re Foundation is very pleased that the project it has supported since 2005 successfully passed the test. The warning system will now be introduced on other rivers, starting with the Save, which also runs through central Mozambique. If all goes well, full-scale trials will be held before the 2008/2009 rainy season starts.

At the same time, it should not be forgotten that the Búzi warning system will have to be further consolidated and updated to ensure it remains operational in the long term. Accordingly, training courses held during the summer were attended by deputy administrators from 47 districts in Mozambique exposed to catastrophe. This was followed by a practice drill in autumn 2007. Furthermore, courses organised for 115 planning and INGC technicians in June and July laid the foundations for integrating disaster prevention into district development and budget plans for 2008.

We are sponsoring a University of Salzburg research project into social vulnerability factors among the rural population. The objective is to examine vulnerability at a local level using geoinformatics and remote analysis techniques. One of the main difficulties, apart from a lack of knowledge about the factors that influence vulnerability, is the shortage of up-to-date and, above all, accurate cartographic material. Fieldwork on the project was concluded in November.

Beans pinpoint the weaknesses

When does a natural hazard event become a catastrophe? The recent past has shown that it is not just a question of the force of an earthquake or the resilience of the defence structures. It also depends on the interplay between social and natural factors. The University of Salzburg's research project applies this interdisciplinary approach by analysing social vulnerability using geoinformatics techniques. This involves environmental, infrastructure, socio-economic and other factors. To ensure long-term success, it is also important to involve the local population in the planning and decision-making.

The on-site technique used by Stefan Kienberger is known as "Participatory Geographic Information Systems" (PGIS). This enhances people's awareness of their natural surroundings by showing them, for the first time, high-resolution satellite images of their home territory. A lively discussion ensues because it is not always easy to reconcile the surrounding landscape with the images (1).

The villagers take part in an exercise in which they have to mark the boundaries of their village on the satellite images (2). Candidates are watched intently to see how they perform. The hand-drawn maps of the surroundings are attractive to look at (3) but subjective perceptions distort reality. With PGIS, people can appreciate spatial concepts more realistically and bring the maps, including hazard warning and evacuation plans, more into line with the actual situation.

In another exercise, people were asked to name the criteria which particularly influenced their vulnerability, such as infrastructure, market access, healthcare and agriculture. Participants were given a certain number of beans and instructed to use a points system to allocate them to cards on which vulnerability factors were marked (4). Their views were then used to identify and discuss weaknesses in their community. Green mangoes functioned as paperweights (5) to prevent the wind from blowing the cards and beans away.



1



2



3



4



5

A more detailed report on the flood-warning system can be downloaded at:

www.munichre-foundation.org

<http://projects.stefankienberger.at/vulmoz>



Due to strong winds, installing the fog nets in Nefasit becomes an acrobatic feat.

Visit to the “Fog Nets for Eritrea” project Water “on tap” – A net success

Phase 1 of the project culminated in the construction of ten fog nets at Nefasit, 25 kilometres from Asmara, the Eritrean capital, in April 2007. The objective of Phase 2, also supported by the Munich Re Foundation, was to improve water supplies to Arberobue. Dirk Reinhard, Vice-Chairman of the Munich Re Foundation, and Kerstin Anker of Water-Foundation Ebenhausen, initiator of the project, visited the area in March 2007 to see how work was progressing.

Vision Eritrea, the project partner in the field, runs health, food and water projects throughout the whole country. The organisation’s team of experts is well trained and equipped, but Vision Eritrea also has to contend with difficult conditions such as diesel rationing and bureaucracy. We, too, encountered problems, being refused permission to leave the capital city without travel permits. In addition, the fog nets that had arrived six weeks earlier were still awaiting customs clearance.

Eritrea’s Water Department, which is backing our project, knows and understands both the problems and the importance of the fog nets. Ghebremedhin Mehreteab, a member of the authority’s staff: “They could benefit a region with 800,000 inhabitants.” Thanks to his intervention, we finally received our travel permits, and he also managed to persuade customs to release the nets.

Nefasit, a village with 3,000 inhabitants, is located at an altitude of approximately 1,700 metres on the main road to the coastal town of Massawa. Its only waterhole is about one kilometre away and, here as everywhere else, children and youths, usually the girls, have the job of fetching water.

Around 15 people, including workers from the village, helped to set up the collectors. The nets were cut out and sewn by local women. Dr. Tseggai Gherezghiher, Director of Vision Eritrea, his engineer, Tseggai Teklemariam, and Virginia Carter of the Canadian FogQuest organisation, which developed the nets, supervised the construction work. The heavy, six-metre-long masts to which the nets were to be attached were carried up the mountain by virtue of sheer physical strength. Due to strong winds, fixing the 40-square-metre nets to the masts was a perilous undertaking. As the workers balanced precariously on long ladders welded together for the purpose, the operation took on all the drama of a high wire act. Finally, on the very last day of our visit, everything was ready. The first two fog nets were in position. Just one week later, seven collectors had been installed. By the end of March, the pipes had been laid and connected up to the tanks which will supply water to around 1,000 school pupils.

37 Another ten collectors have now been erected in the village of Arberobue, which is situated about 18 kilometres away from Asmara at an altitude of 1,800 metres. Conditions here are perfect for a high yield, with thick fog all day long from October to January. During our visit, the mountainside was covered with dense clouds every day from five o'clock in the afternoon, ideal for improving water supplies.

The village, which is located in steep terrain, is home to 120 families, totalling about 1,000 inhabitants. Almost all the younger men are in the army, and the remainder take the difficult path to the capital city to work as day labourers. Water is available from tanker lorries at a cost of 15 Nafka (€0.69) per 20-litre canister – the equivalent of nearly half a day's wage and beyond the means of people in the village.

"My grandchildren and I drink water from the village waterhole, although I know it's not good", says 65-year-old Mihret Kahsay. She looks after her six grandchildren, two of whom have no parents. Children normally fetch drinking water but her charges are too young to undertake the strenuous three-hour march to the waterhole and back. Local government official Adam Hassen points towards the waterhole that lies in a valley beyond two hills: "We are very happy to know that the water situation will get better thanks to the collectors."

FogQuest will help the country to find suitable sites for as long as necessary. However, people are confident that Vision Eritrea, which acquired the relevant expertise in Phase 1 of the project and can count on local support, will soon be able to set up further collectors without outside help. This would be a major step towards the goal of increasing fog water yields in Eritrea.

As autumn approached, the tension mounted. Would the technique work? The fog season began in October, earlier than usual, and before long the cisterns were full.

The Munich Re Foundation has plans for further projects in Eritrea. However, the existing programme will now have to be evaluated and ways found of reducing the cost of the materials. Once the key elements have been ascertained and the results analysed, other projects will be launched in the Eritrean highlands. During the winter months, moisture-laden fog is carried across this mountainous area extending some 500 kilometres through eastern Africa: more than enough room to set up fog nets so that the impoverished mountain dwellers can conjure up the elixir of life out of thin air.

Further information on this issue:

FogQuest
www.fogquest.org

Wasserstiftung
www.wasserstiftung.de



Traditionally, the onerous task of fetching water has fallen to the young.

The nets are cut to size and sewn on site.

The 40-square-metre nets can extract up to 200 litres of drinking water per day from fog.



Two experts from Tonga's Meteorological Service discuss the next steps with colleagues from Australia.

The satellite dish at Fua'amotu Airport provides the link with the Meteorological Service.

Chief Meteorological Officer, 'Ofa Fa'anunu, makes a note of weather conditions.



Foundation prize

Tonga: Full speed ahead on high-frequency system

Work on an early-warning system in Tonga is now making good progress, despite falling behind schedule due to unexpected hitches. With the help of New Zealand's Meteorological Service, the system should be ready by mid-2008.

The prize awarded by the foundation in 2006 has given Tonga the means to develop an effective early-warning system. It will warn people of the approach of tropical storms and floods – a scourge that frequently strikes the scattered islands of the archipelago state. Previous efforts by the National Disaster Management Office to assess the precise extent of potential threats have often been hampered by the fact that the existing satellite system is disrupted by strong winds.

By contrast, the early-warning system financed with the help of the Munich Re Foundation is equipped with a communications network based on high-frequency radio data, providing better forecasting and reliable alerts. Forecasting quality will be further enhanced by access to RANET, the Pacific warning system.

After setbacks due to problems with an Australian supplier, the technical equipment finally reached Tonga in October 2007. During this phase, an expert from Tonga was being trained by the Australian Bureau of Meteorology and RANET specialists.

Since December 2007, New Zealand's Meteorological Service has been working all out to install the system on Nukualofa. High-frequency antennae are due to be erected on other islands, including Nemo, Vava'u and Ha'apai, in the first six months of 2008. Tonga will then have a highly effective early-warning system capable of saving many lives if disaster strikes.

Past experience has shown how important this is for Tonga in particular. Since 1980, the island kingdom has suffered eight cyclones and one tornado. Soon its inhabitants will be able to better prepare for such events. In this way, the foundation prize will have achieved its objective: of improving living conditions and reducing vulnerability to disasters.

Further information on this issue:

Third International Conference on Early Warning
www.ewc3.org

Tonga in danger

The South Sea island kingdom is frequently a hurricane victim. The most severe cyclones of the past 25 years (see right) reached peak speeds of 250 kilometres per hour. The diagram shows the tracks and intensities of some of the windstorms.

Source: Munich Re, Munich, Geo Risks Research 2007, Helga Weindl

March 1982

Cyclone Isaac. The then worst cyclone in the Kingdom's history caused heavy damage, destroying the only power station and most of the island's crops. The Ha'apai islands were hit particularly hard.

March 1988

A tornado left behind it a trail of destruction. Worst affected were Nukualofa and Tongatapu.

February 1990

Cyclone Ofa caused devastation on Tafahi and Niuatoputapu.

March 1997

Cyclone Hina sped over Nukualofa with wind speeds of up to 150 km/h. Roofs were uncovered, a hangar destroyed at the airport and crops damaged.

March 2000

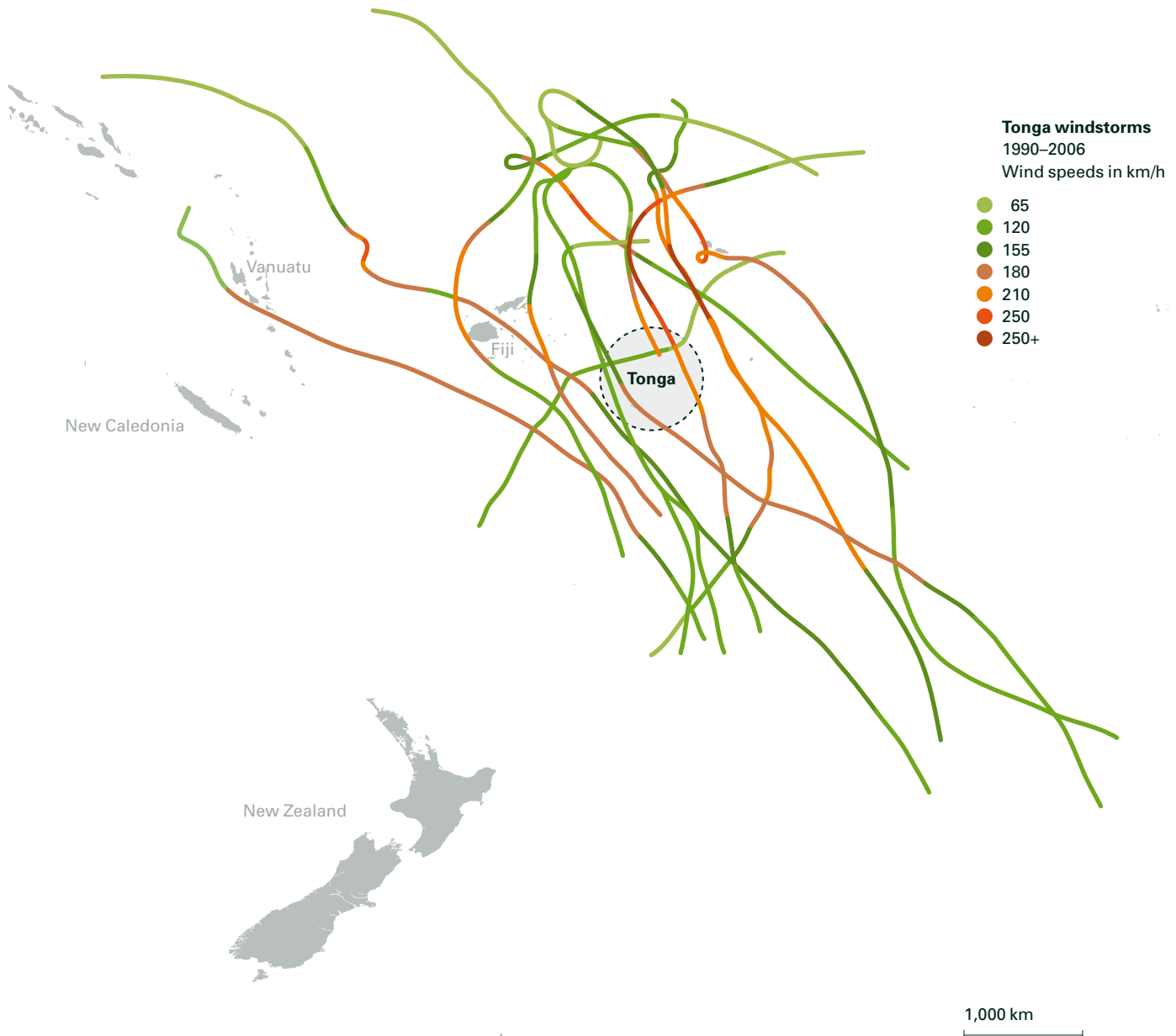
Cyclone Mona struck Tongatapu.

December 2001

With wind speeds of up to 250 km/h Cyclone Waka is the most severe cyclone on record. Niuafu'ou, Vava'u and Niuatoputapu suffered most damage. The economic losses alone came to US\$ 50m.

January 2004

Tafahi and Niuatoputapu were lashed by Cyclone Heta.



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

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Editorial team
Thomas Loster, Eva Stiepel
Munich Re Foundation
Andreas Schuck, Munich

Editorial support
Thomas Jacobitz, Florian Wöst,
Karin Gross-Kaun
Corporate Communications
Munich Re

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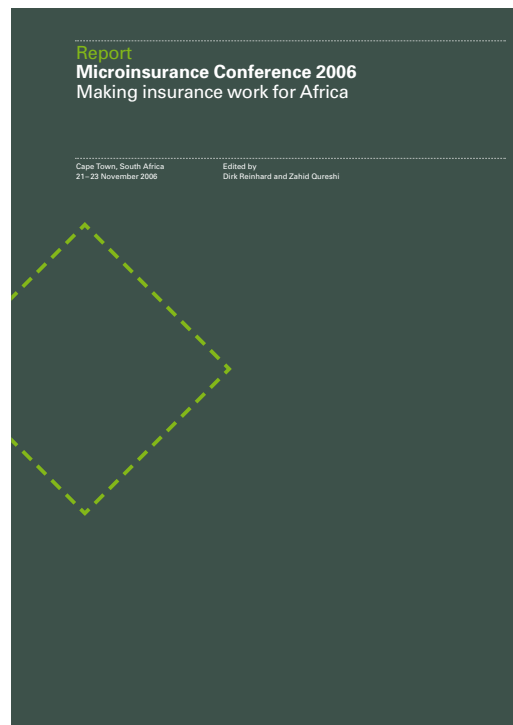
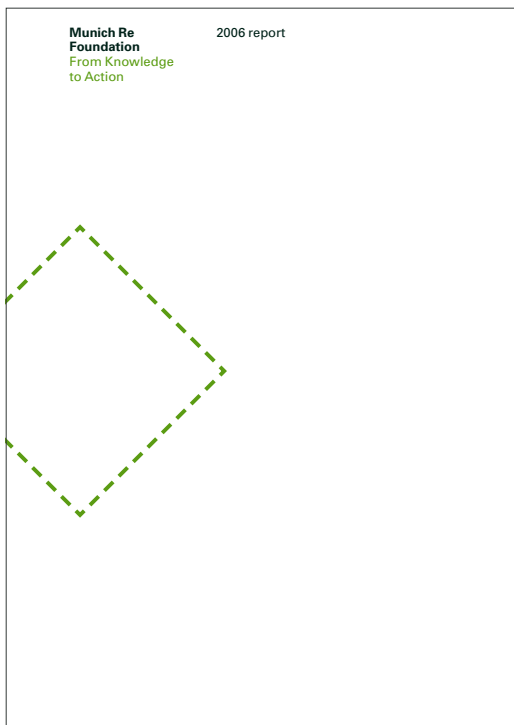
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Publications

Annual report	2005 report Date of publication 4/2006 Order numbers German: 302-05000 English: 302-05001	2006 report Date of publication 3/2007 Order numbers German: 302-05349 English: 302-05349
Conference report	Microinsurance Conference 2005 Making insurance work for the poor: Current practices and lessons learnt Date of publication 6/2006 Order number English: 302-05046	Microinsurance Conference 2006 Making insurance work for Africa Date of publication 6/2007 Order number English: 302-05381
IntoAction	IntoAction 1 Microinsurance Making insurance work for the poor Date of publication 1/2006 Order numbers English: 302-05002 French: 302-05003 Spanish: 302-05004	IntoAction 2 Flood warning system in Mozambique, completion of the Búzi project Date of publication 6/2007 Order numbers German: 302-05421 English: 302-05422
Books	Protecting the poor A microinsurance compendium Date of publication 11/2006 Order number 302-05140 Text in English 654 pages ISBN 978-92-2-119254-1	

New publications 2007



16–17 January

Regional microinsurance workshop organised in Beijing, China, by the World Bank, the China Insurance Regulatory Commission, the CGAP Working Group on Microinsurance, and the Munich Re Foundation

**22 January/21 February/
11 March/15 April**

“Munich 2030”
dialogue forums

16–18 April

Expert workshop
“Migration and climate
change”, Munich

23–25 May

Symposium “Climate
change and justice”
in the Evangelische
Akademie Tutzing

Summer 2008

Completion of the
early-warning system
RANET, Tonga

20–26 July

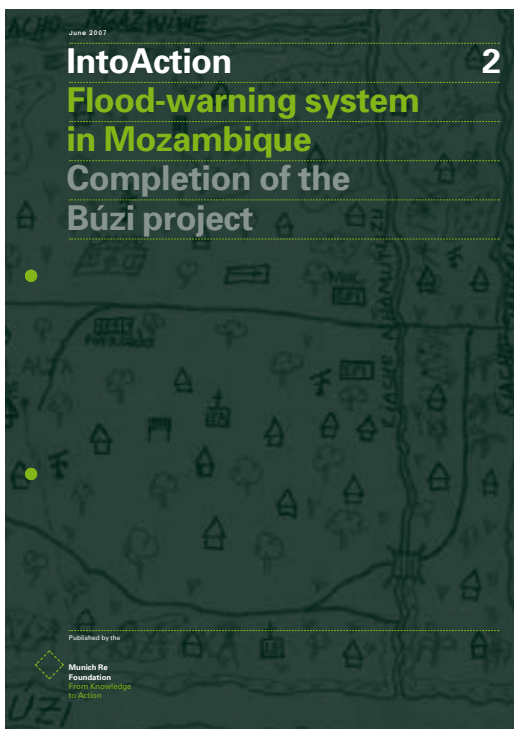
Third Summer Academy
at Schloss Hohenkammer
discusses “Environmental
change, migration
and social vulnerability”

November 2008

Early-warning practice
drill at the River Búzi,
testing the flood-warning
system on the River Save

5–7 November

Fourth International
Microinsurance
Conference at Cartagena,
Colombia



Munich Re Foundation
Königinstrasse 107
80802 München, Germany

Telephone +49 (89) 38 91-88 88
Fax +49 (89) 38 91-7 88 88
info@munichre-foundation.org
www.munichre-foundation.org

Letters: 80791 München, Germany



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