WE ARE ALL WITNESSES
PEOPLE IN A CHANGING CLIMATE

Experiences of people from Europe, Amazonia, West Africa and South Asia

Compiled by Climate Alliance of European Cities with Indigenous Rainforest Peoples, Climate Alliance Austria, Crossing Borders / Denmark, Nadace Partnerstvi / Czech Republic, Friends of the Earth - CEPA / Slovakia, Vedegylet Egyesület / Hungary, FOIRN / Brazil, EcoCiencia / Ecuador, Formabiap / Peru, ARFA / Burkina Faso, RDGRN / Niger, CSE / India and ASTM / Climate Alliance Luxembourg within the framework of the joint project "From Overconsumption to Solidarity", www.overconsumption.eu.

FROM OVERCONSUMPTION TO SOLIDARITY

This project is funded by the European Union.

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FROM OVERCONSUMPTION TO SOLIDARITY

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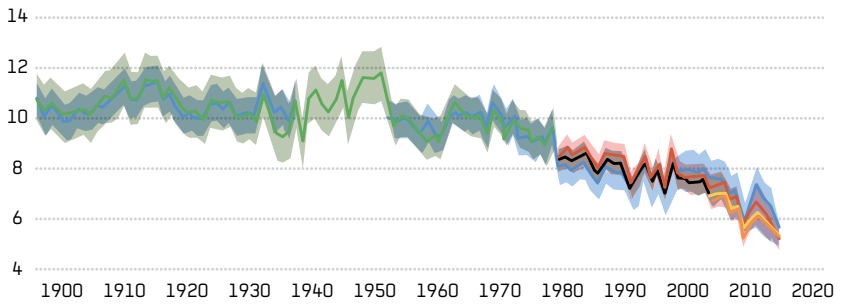
The newest findings of science: climate change is happening

The **International Panel on Climate Change** (IPCC, www.ipcc.ch) **report** of 27 September 2013 states: "Warming in the climate system is unequivocal." It goes on to say: "It is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century". Improved climate models, data and observations make it clear that many of the effects of warming are accelerating or happening faster than predicted in previous reports. Here, by way of illustration are two examples relating to the water cycles:

Cryosphere:

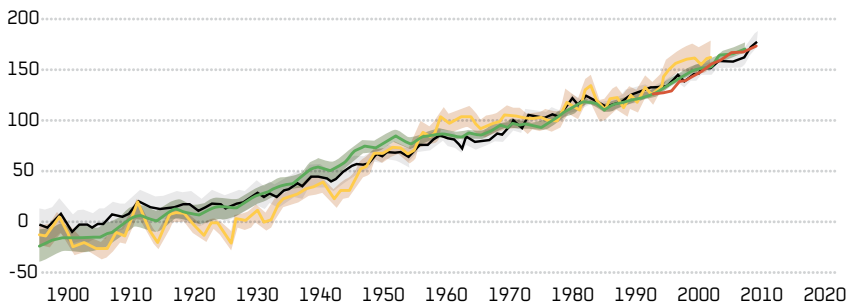
Arctic summer sea ice extent (in million km²)



Worldwide, the ice sheets and glaciers are losing mass. The annual mean Arctic sea ice extent decreased between 1979 and 2012 very likely with a rate of 4 % per decade. During the last two decades, the Greenland Ice Sheet has lost mass, from 2002 to 2011 even much faster than from 1992 to 2001.

Sea Level:

Global average sea level rise (in mm)



Ocean warming dominates the increase in energy stored in the climate system (more than 90% since 1971). Since the early 1970s, glacier mass loss and ocean thermal expansion together explain about 75% of the global mean sea level rise. Over the period 1901-2010, global mean sea level rose by 0,19 m. The rising rate of 1,7 mm per year between 1901 and 2010 nearly doubled between 1993 and 2010 to 3,2 mm. This is faster than estimated in the 4th report.

Data sources on the following country panels

The following 24 panels illustrate how climate change is already taking place in 16 countries on four continents. For this purpose we have put together a number of personal testimonies and natural phenomena, all of which are in line with the 2007 IPCC projections and the new findings of 2013. The panels focus on the implications of climate change for the water cycle.

In order to show the extent of each country's contribution to the problem, we have added the 2010 figures for CO_2e emissions from the Joint Research Centre of the European Commission and the Netherlands Environmental Assessment Agency (http://edgar.jrc.ec.europa.eu/overview.php?v=GHGts1990-2010, up-dated 17.9.2013). Those figures include other greenhouse gases converted into CO_2 equivalents and emissions resulting from large-scale biomass burning (e.g. forest fires) and are divided by the 2010 population figures from the Human Development Report 2010.

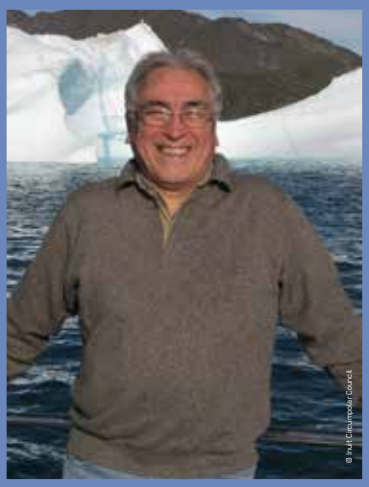
In order to show which countries' populations suffer most from the consequences of climate change, we have indicated their degree of risk as stated in the 2012 WorldRiskReport. This is based on the extent of a population's exposure to natural hazards such as storms, floods, droughts, sea level rise and earthquakes as well as the vulnerability of that population, which is the sum of susceptibility, lack of coping capacities and lack of adaptive capacities.

Greenland 1: melting ice ...

◄ Hunter in the region of Ilulissat, West Greenland

© David Trood, Ilulissat 23, flickr /lovegreenland

Aqqaluk Lynge,
former president of the Inuit Circumpolar Council.

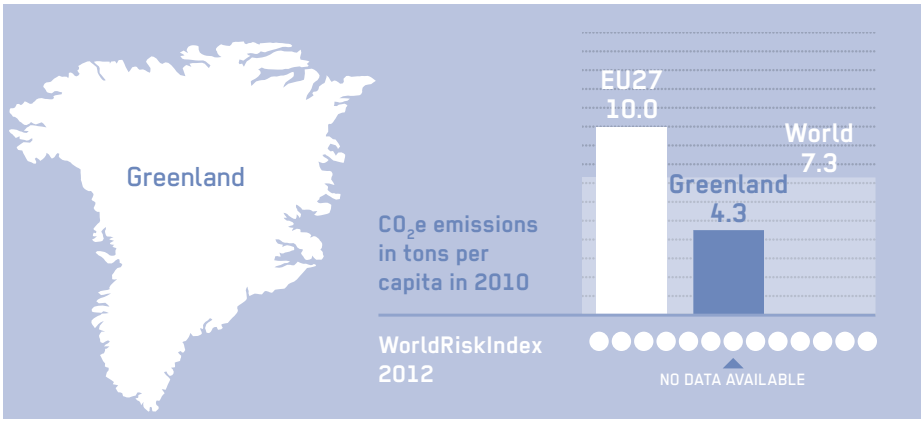


© Inuit Circumpolar Council

"Hunting is an integral part of Inuit way of life. In recent years, the number of hunters has dropped by more than half. Marine species such as walrus, polar bears, narwhals, and seals are moving away from areas in which they were traditionally hunted, as they respond to pressures in local ecosystems. Polar bears for example are now being seen around towns and settlements for the first time. Traditional hunters that use dog sleds now have to use land instead of sea ice and the hunters have to go further out for game. Yet, it is increasingly more dangerous to do so with the rising frequency of storms. This is a very real threat to hunters that live off traditional hunting. Hunting communities are facing increasing uncertainty on all levels of their existence, and their hunters are turning to the growing tourism industry — a side effect of global warming — and other coping strategies to maintain their local subsistence activities and to reinforce their own culture."

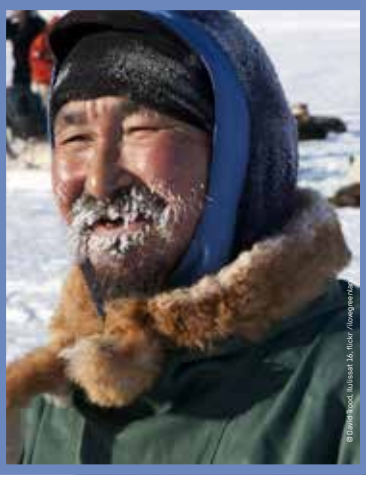
SCIENTIFIC BACKGROUND

The Arctic climate has changed at an alarming rate over the last fifty years. Arctic glaciers and ice streams are narrowing and flowing at a faster rate. The extent of annual average sea ice has greatly diminished, with scientists predicting that sea ice in the Arctic may disappear entirely by the end of the 21st century (IPCC 2007). The decrease in extent and volume of Arctic Sea ice has exceeded previous projections. In 2007, 2011, and 2012, record low sea ice cover was observed, exhibiting roughly half the size of the normal minimum extent of the 1980s.



Greenland 2: ... on land and sea

Hunter,
close to Ilulissat, Central Western coast of Greenland



© Steve Rood, Ilulissat 16, flickr /iloveg reenland

◀ Serminnguaq ("little glacier"), Kangerlussuaq Fjord, West Greenland.

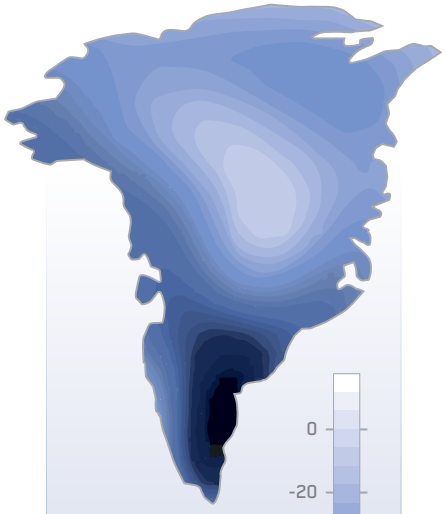
© Arne Hardenberg, flickr /ilovegreenland

"Our ancestors have lived in these vast regions for thousands of years, adapting to one of the most severe climates of the planet, living off the resources that nature could supply. When the sea ice grows, you can use that for many things, like transportation. But the sea ice hasn't been there for the last seven to eight years. You don't see the sea ice freezing anymore. As the permafrost melts, the roads and airports become unstable, causing damage to infrastructure. We are also experiencing much more violent storms with hurricane force winds and rains that melt all the snow."

Inuuteq Holm Olsen, Deputy Foreign Minister of Greenland's Home Rule Government, Plenty 2008.

SCIENTIFIC BACKGROUND

The Greenland ice sheet is the largest body of ice in the northern hemisphere. It influences the global climate by its direct link to global sea level and by its effects on ocean temperatures, salinity and circulation. The Greenland ice sheet has been melting at an accelerating rate since the 1990s. Since 2006, high summer melt rates have led to a Greenland ice sheet mass loss of 273 billion tonnes a year. An exceptional melting was recorded by scientists in 2012. Most recently, the Greenland ice sheet is estimated to contribute up to 0.7 millimeters to global sea-level each year. Model projections indicate the Greenland ice sheet will undergo further decline, though the processes determining the rate of change are still not well understood. The 'tipping point' at which the Greenland ice sheet will completely melt is projected at a global temperature rise of about 3 degrees C, though this estimate is subject to uncertainty (European Environment Agency, 2012).



Greenland ice mass loss from 2003 to 2011 in centimeters.

Source: http://www.nasa.gov/mission_pages/Grace/multimedia/pia13955b.html

Denmark:
A lovely land is ours / with beeches green about her / encircled by the sea.

Examining a snapped beech affected by beech bark disease

Healthy Danish beech tree forest

Palle Madsen,
Senior researcher, Department of Geosciences and Natural Resource Management, University of Copenhagen

Palle Madsen: "You can say that ice ages have narrowed the gene pool we naturally have in Denmark. And the extent of genetic diversity is crucial to determining how well forests are able to adapt to an unknown future. The wider [the gene pool], the stronger. It is probably preferable to have an adaptable and healthy beech forest with genes from the Caspian forests in northern Iran, if the alternative is losing the Danish beech forest."

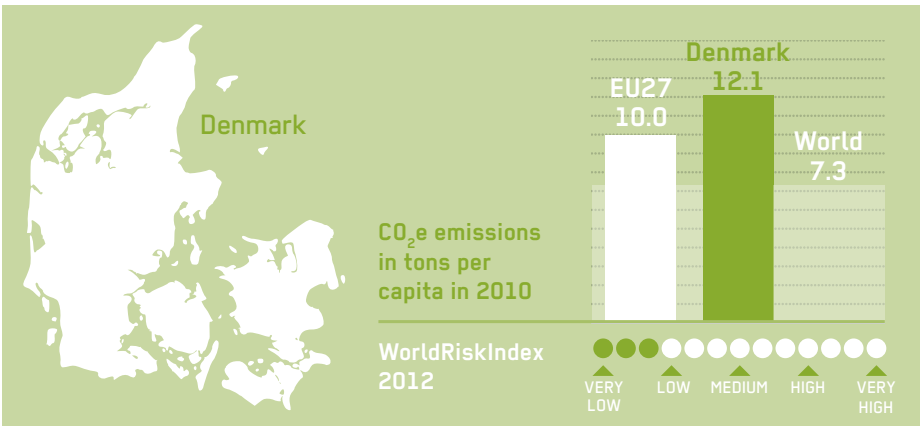
SCIENTIFIC BACKGROUND

Yet, those "beeches green about her," so celebrated in the Danish national anthem, along with other tree species across Denmark are especially vulnerable in a warming climate: Tree diseases are moving around the planet faster than ever before and possibly new, yet unknown pests and pathogens, including parasites like Phytophthora, pose a threat of unknown magnitude to Danish forest tree species. In recent times, elm and ash have been severely damaged by new diseases.

Storms at present are a significant factor in damaging Danish forests. During the last 40 years, three storms (in 1967, 1981, and 1999) damaged a total of 10 million m^3. The Gudrun storm hit Denmark on 7-9 January 2005; the amount of felled forest equalled 1.5 times the annual conifer harvest.

OTHER IMPLICATIONS OF CLIMATE CHANGE

Denmark consists of the Jutland peninsula and more than 400 islands. The whole of the country is lowland. The coastline has a length of more than 7300 km. Over the last century, a linear trend of 0.44 mm rise per year (i.e. 4 cm per century) can be observed in Copenhagen water level data from the city Coastal Authority. The maximum observed rise is in southwestern Denmark, where the water level is rising by about 1 mm per year. 80% of the population lives in urban areas near the coast.



czech republic: severe floods

◀ Flash Flood in Jesenik nad Odrou in 2009

© Aeordata s.r.o.

Stepanka Hanzlikova

© Ivan Strikedky

Stepanka Hanzlikova (±70) who has lived in Jesenik nad Odrou for 65 years saved her life by hanging for several hours on the birch tree that she planted a long time ago. "The water has always been here in smaller or greater quantities and has flooded pastures and fields around not affecting much the life of people. But the thing that happened in 2009 was a disaster for the entire village and I have a trauma that stays with me even after so many years."

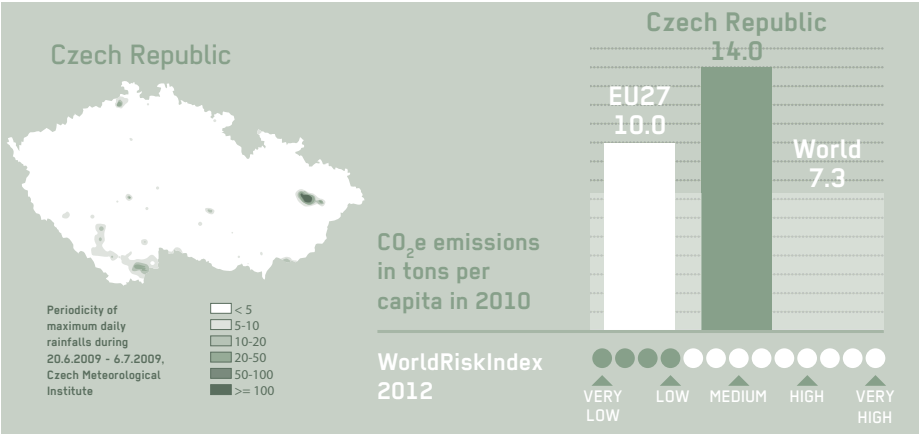
SCIENTIFIC BACKGROUND

The Czech Republic has experienced severe floods during the last two decades that has belied the experience of people in the last centuries. Extreme floods affected half of the country in the Morava River catchment in 1997, the city of Prague and Vltava and Elbe river basins in 2002 and 2013. During the last decades there have been several extreme rainfalls over small areas that caused local disasters. The village of Jesenik nad Odrou experienced the worst of such "flash floods" in 2009, five people died.

FLASH FLOOD IN JESENIK NAD ODROU IN 2009

In the summer of 2009 a series of extreme storms hit several regions in Northern Moravia. Eastern thermal low-pressure stayed over the country for 12 days, which was a very unusual situation that had not been historically observed and resulted in heavy and fast rainfalls affecting the same area over and over again - called a "train effect". A total of 114 mm of water fell within 3 hours in Jesenik nad Odrou and the water level in the local stream of Luha peaked from its regular 800 l/sec to about 200 000 l/sec.

Five people died in Jesenik nad Odrou, a total of 23 family houses were destroyed, damages leveled at 12 800 000 Euros.



slovakia: decrease in water capacity

◀ The moment of reaching the water after drilling deep into the ground

© Jozef Páleník

Jozef Páleník,
Hydrogeologist

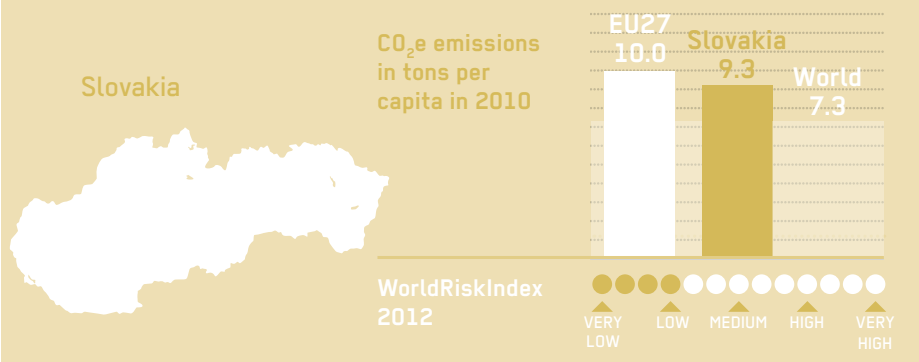
My name is Jozef Páleník. I have worked as hydrogeological expert since 1965. Part of my work is that I cooperate with companies, which drill wells for people. I must say that not so long ago it was much easier for people to reach water - it was enough to dig 10 -15 metres underground and you had enough water all year round. Nowadays, it is neccessary to go much deeper, sometimes 70 metres and more and drilling machines must be used. I suspect that this tendency will continue. The photography shows the drilling process in the moment of reaching the water, so that the owner can have his own well.

SCIENTIFIC BACKGROUND

Although Slovakia is well known for its large reserves of underground water, research on potential of underground water and springs has confirmed that in central, southern and south-eastern parts of Slovakia, the capacity of springs has dropped by 15 per cent in the period from 1981 to 2011 as compared to period until 1980. This is attributed to climate change impacts and not to human activities. Climate change impacts on water management in Slovakia relate to floods on the one hand and on the other hand to low or longlasting decrease in water capacity.

OTHER IMPLICATIONS OF CLIMATE CHANGE

- Increasing temperatures - implications on life cycles of plants, animals and people
- Periods of heat waves over 30 °C - health complications (to elderly and people with breathing and cardiovascular problems)
- Increasing number of tropical days (e.g. 22 tropical days in Bratislava in august 2003).
- Droughts, torrential rains, floods and strong windstorms - damages on agriculture, infrastructure, and lives of people.



Hungary: Life in a baking oven

Szép Gyöngyvér

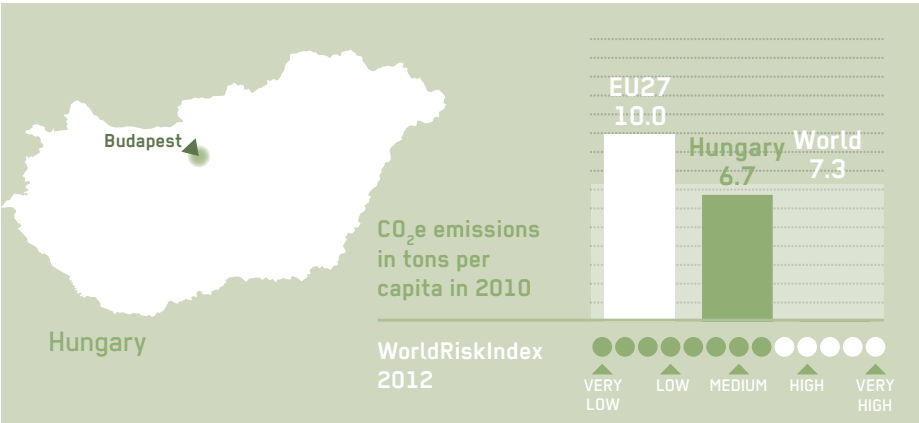
Appartment blocks in Budapest, Óbuda

Szép Gyöngyvér, 46 years old, unemployed, mother of 3 boys and a girl. The 5 member family live in 50 sqm prefabricated flat. „We have to live on a 500 Euros monthly income. The utilities cost up to 260 Euros. The district heating cost 130 Euros in winter and 60 Euros in summer, while the temperature in the flat is not comfortable, too hot all the time. In winter it's 26 C° and I cannot regulate it so I have to leave the window open to reach a normal temperature, so basically I warm the street. In summer, I measured 33 C° in the flat which means I cannot sleep and I suffer from oedema and swelling. I remember when I moved here 7 years ago the temperature was at least 4 C° less."

SCIENTIFIC BACKGROUND

There are nearly 788 000 prefabricated flats in the country. 2,1 million people live there. Technological problems, the roofing and the plumbing, the inadequate heat and noise insulation, the unregulatable district heating makes the living costs in these microdistricts disproportionately high. The national program for insulating these flats is proceeding very slowly.

In the 2003 heatwave, the number of heat-days, when the maximum temperature exceeds 30°C, was 45 in national average, and this was breaking earlier records. During the heatwaves in the period 2008-2011, a 15-28 percent increase in the mortality rate was observed. 80 percent of the cases involved a person above 65. The urban population is endangered to a greater extent because the temperature is several degrees higher, the natural ventilation is weaker and the radiation of the buildings sustains the high temperature several hours longer.



ecuador: melting tropical glaciers

◀ The Chimborazo volcano, 6268 m.

© Felipe Segovia / EcoCiencia

Sr. Olmedo Cayambe,
president of CORDTUCH, the community tourism organization of the Chimborazo region

© Silvia Vallejo, EcoCiencia

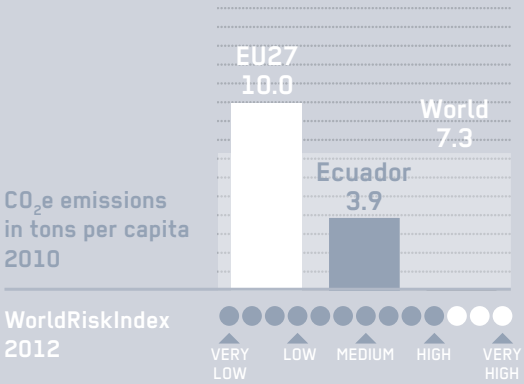
"Well, up there the Yanacocha and the Chaquishkacocha lagoons used to be the watering place for the cattle of Tambohuasha community. Now, they have disappeared because it is less raining and becoming much warmer. To have water for their cattle, the community must bring it through pipes from the neighbouring Carihuayrazo mountain. During the last decade, the cattle has been grazing every time higher up in the Chimborazo Fauna Reserve in order to have more access to water and to pastures depending on it.

The last "hielero" of the Chimborazo

In the past, ice used to be extracted upstream the lagoons from the Chimborazo by indigenous inhabitants for being sold to urban dwellers. Presently there is only one "hielero" left, Don Baltasar Ushca. He told me that before the Chimborazo was quite cold, there was enough rain, and the snow used to remain even where the communities are settled, being even 40 cm high at 4,000 m above sea level. Now however, the ice starts at 5.500 m, and there is no snow anymore."

SCIENTIFIC BACKGROUND

The smallest glaciers in the Andes, such as those in Carihuayrazo, located below 5100 m height are irremediably in unbalance with current climate: From 1939 to 2006, temperature in the tropical Andes increased by 0,7° C. It is the level of frost and the relation between rain and snowfall that determine how much a glacier is melting at its surface. Actually, the glaciers are losing mass, and if the current conditions prevail, residual glaciers will disappear in a few years or in up to two decades.



The Andean Amazonia: extreme climate variability

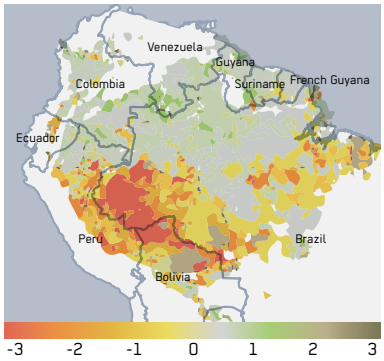
◀ Upper Rio Pastaza near Mera

© Veronica Angulo / EcoCiencia

Maria Ushca
from Santa Rosa Sector, Santa Clara Canton, in Pastaza Province, Ecuador

© Veronica Angulo, EcoCiencia

"Local people have experienced river floods in recent years that are not normal for the winter months, and have suffered some material loss. Although, part of the bridge from Santa Clara parish to Tena was damaged four months ago (start of 2013), the problem was solved almost immediately, as the authorities are working to fix the town sewers which are very small."



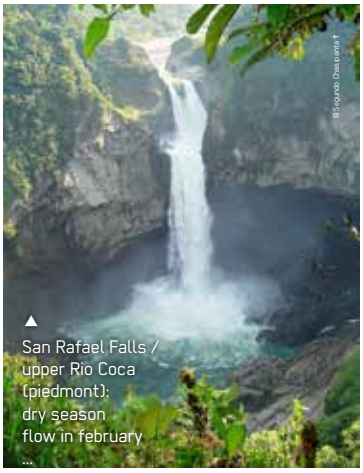
The extent of the 2005 megadrought in the western Amazon rainforests during the summer months of June, July and August as measured by NASA satellites. The most impacted areas are shown in shades of red and yellow. Image credit: NASA/JPL-Caltech/GSFC

SCIENTIFIC BACKGROUND

The Upper Amazon is located on the eastern slope of the Andes between 600 - 1300 meters above sea level and its high rainfall is normal (3000-4500 mm/year). The temperature ranges between 14 and 24°C, with permanent cloud cover. The volcanic Andean rivers that flow into the Amazon River watershed - such as the Pastaza and the Coca - carry sediment that feeds the lowland every season.

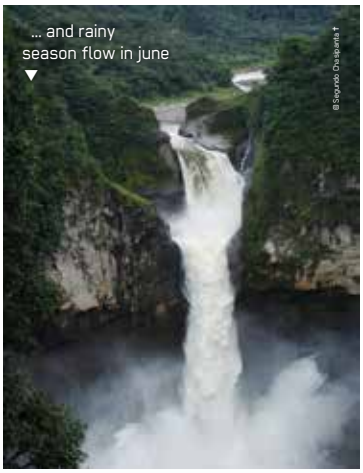
In the piedmont, there are increasingly evident alterations in the dry and rainy seasons, resulting in extreme weather events, a decrease in rainfall and an increase in temperature. In 2005, the lowland Amazon had its worst droughts and, in 2010, it suffered again the effects of heat and lack of rain, which start in the high jungle.

The abnormal climate variability caused prolonged periods of drought followed by heavy rains that caused landslides, floods and disruption to infrastructure and crops that threaten human security and the Amazon forests.



© Segundo Oviedo Freire

▲ San Rafael Falls / upper Rio Coca (piedmont): dry season flow in february ...



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... and rainy season flow in june ▼

Brazil 1 / Rio Negro: unexpected rainfalls

André Baniwa

◀ Tributary to Isana River

© Emil Benesch, KB Österreich

My name is André Baniwa. As my name is already indicating I am part of the indigenous people called baniwa. My mother tongue is baniwa. I am about 40 summers old, as we are accustomed to say - thus underlining the importance of the summer-period in our culture and for our lives. I was born in Tucumã Rupitá, a village of 200 inhabitants at Isana River, a tributary river of the Rio Negro in NW Brazil. Looking for it at the map it helps to look out for the „head of the dog", as the Region at the upper Rio Negro is also called.

Being active in the indigenous movement for 20 years, I am concerned about changes I have witnessed throughout the recent years. It was in February 2012, when a week long period of rain instead of the traditional sunny and dry weather lead to a period of hunger for the people in my region. Due to the unexpected rainfalls in our summer, the roots of the manioc plants started to rot in the soil.

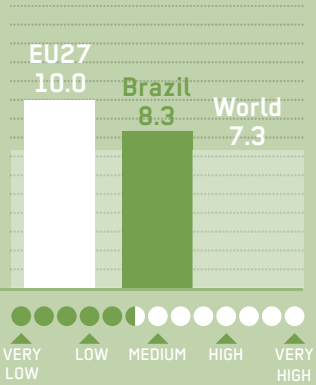
SCIENTIFIC BACKGROUND

The Isana Region has an annual precipitation of 3460 mm.

Severe changes in precipitation in the Rio Negro Region in recent years are reflected in the flow of the river. In the year 2009, Rio Negro showed the highest water levels registered in history. Within one year occured one of the most severe droughts and the river had one of the lowest water levels in history. Another big drought hit the region in 2005, when whole tributary rivers dried out, isolating villages that usually are reached by boat.

CO_2e emissions in tons per capita in 2010

There are no emissions data available for Rio Negro or indigenous peoples in Brazil. Due to their lifestyle, they are very likely far below 1 t per capita (as most of Brazil's emissions result from deforestation).



WorldRiskIndex 2012

Brazil 2 / Rio Negro: An unusual cooperation to confront global challenges

Drying rack on the board of Isana River for beju, a kind of manioc bread.

© Emil Benesch, KB Österreich

Almerinda Ramos de Lima
On the right, Hans Kandler / CA Austria

© Klimabündnis Österreich, Photo: Emil Benesch

Almerinda Ramos de Lima, member of the indigenous people called Tariano, is the first woman at the head of the organization FOIRN:

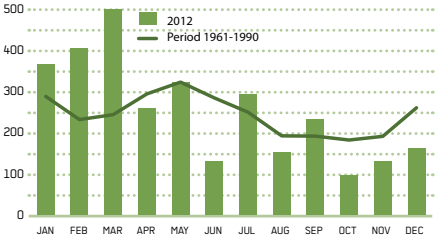
"Living in the region for 3000 years, our peoples have developed a calender, that foresees the preparation of fields in our summer months. Traditionally every summer each family creates space for a new field. The men cut the trees and then burn them. The ashes thus created serve as fertilizer for the new field plantation. The rainfalls in February 2012 made the burning of the cut trees impossible. No new fields could be prepared during the summer-period. After summer the rainy season starts, so also no chance to create new fields. Bearing in mind that we can use our fields only for 2 years for the plantation of manioc, ananas and pepper before the vegetation of the rainforest comes back and takes over again, the cultivation area of each family was reduced to the half by the wet summer of 2012."

Scientific background

The monthly average precipitation in Sao Gabriel da Cachoeira, situated at the Rio Negro shows less precipitation in summer periods, when traditionally the new fields are prepared. The figures for 2012 show significant deviations from the average mesurements of 30 years.

The average monthly rainfall - based on measurements in the period from 1961-1990 - compared to the monthly rainfall in 2012.

(rainfall in mm)



Source: INMET, http://www.inmet.gov.br/portal/index.php?r=clima/normaisClimatologicas

Background of Climate Alliance Austria's relation with the Rio Negro Region

The federation of the indigenous organisations of the Rio Negro Region, FOIRN has as main objective to defend the rights of the 23 indigenous peoples in the region. Principal successes are the creation of indigenous territories of the size of 122 000 km². In the indigenous territories sustainable, indigenous lifestyles can be maintained and due to this 99.94% of the rainforests are intact.

FOIRN and Climate Alliance Austria have supported one another in a partnership since 1993.

peruvian amazon: Loreto region

◀ Flood in Bolivar / Loreto

© Astrid Sieler

Aurelio Chino Dahua,
President of the indigenous organisation FEDIQUEP

© FORMABAP

Aurelio Chino Dahua, 40 years old, Quechua, President of the indigenous organization FEDIQUEP: "In the Loreto region, we have experienced serious (environmental) changes. Heavy floods that destroy our fields and houses are increasingly common. We observe changes in nature that affect our daily lives and our way of life. There are fewer fruits and hunters often come home without a kill. We have the impression that the forest itself is also dry, which therefore leads to more forest fires. I am very concerned about the situation and what impact this has on our children and our future. "

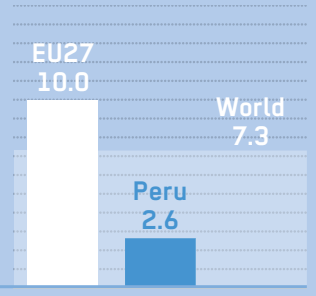
SCIENTIFIC BACKGROUND

Peru is particularly affected by climate change. The consequences are floods, landslides, but also waves of drought and cold. Rainfall distribution has been significantly altered by climate change in all ecosystems. While in some regions (Loreto, Apurimac, Cusco) precipitation has increased, the trend is a decline in the south.

The Andean glaciers have lost 22 percent of their mass in the last 35 years. The melting of the glaciers, which are particularly important for the storage of fresh water, has lead to a decline in the quantities of water flowing from the mountains to the coastal desert.

CO_2e emissions in tons per capita 2010

There are no emissions data available for the Loreto region or indigenous peoples in Peru. Due to their lifestyle, they are very likely far below 1 t per capita.



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Amazon: Droughts


© Gustavo Tomsky / ISA

◀ The dry port of São Gabriel da Cachoeira on the Rio Negro, February 2007

The Amazon is home to the largest rainforest in the world, covering roughly 6 million square kilometres. Around a third of all animal and plant species on Earth live here, as well as over 1.5 million indigenous people from approximately 400 different nations.

◀ View from the Alto da Serra de Tunuí. Waterfalls on the Isana River in northern Brazil

© Camila Sobral Barra / ISA

Diego Escobar
COICA


© Nicole Bonin Fotografia

Diego Escobar, Coordinator of Territories, Environment and Natural Resources at COICA (Coordinator of Indigenous Organizations of the Amazon Basin) and Vice-Chair of the Climate Alliance:

In addition to exceptional rainfall in some regions there were more "droughts of the century" in the Amazon, such as in 2005 and 2010. All the rivers dried up completely, so that the people living in those regions could not leave their communities and had to be supplied by the military. Millions of trees died off; forest fires increased.
In addition to the exploitation of natural resources, such as illegal logging, the expansion of agriculture and large-scale infrastructure projects, climate change is a new additional danger for us: We, the indigenous peoples of the Amazon, protect the rain forest, which has always been the foundation of our lives.

SCIENTIFIC BACKGROUND

Observations in the Amazon by satellite and on the ground have shown more dying trees and forest fires during the recent drought. About 70 million hectares of forest in the western Amazon suffered during the dry season in 2005 from severe water shortage and a concomitant reduction of the canopy and loss of moisture that lasted until the next drought period in 2010.The result suggests that a 5 - 10 year cycle of drought leads to a permanent change in the forest roof.

Current rates of deforestation and forest degradation mean the Amazon is approaching a tipping point, in which rain forests become seasonal forests or even savannahs and convert from carbon sinks into carbon sources.

Rainforest biomass is a huge carbon sink: an average hectare of rainforest binds approximately 5 - 20 tonnes of carbon dioxide annually and stores around 250 tonnes of carbon permanently in the biomass. Where indigenous people have secured their land rights, the rain forest is the best preserved. Consequently, they make an outstanding contribution to environmental protection.

Burkina Faso 1: crops damaged by floods

Yempabou Lankoande

◀ Floods in Burkina Faso, Sept. 2007

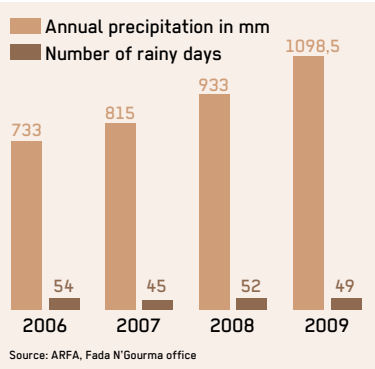
© Severine Flores / Tearfund.

My name is Yempabou LANKOANDE, I am a farmer from Manni. I farm in the Manni rice plain. The rain has caused a lot of damage here. All the young plants were washed away by the force of the water. Even the topsoil is gone with all the seedlings we had planted. We need to start from scratch. I had planted corn on my plot cash to get me through the lean period and the corn has just been totally engulfed by water. There is no hope, neither for the corn nor rice crops. This harvest has been totally lost.

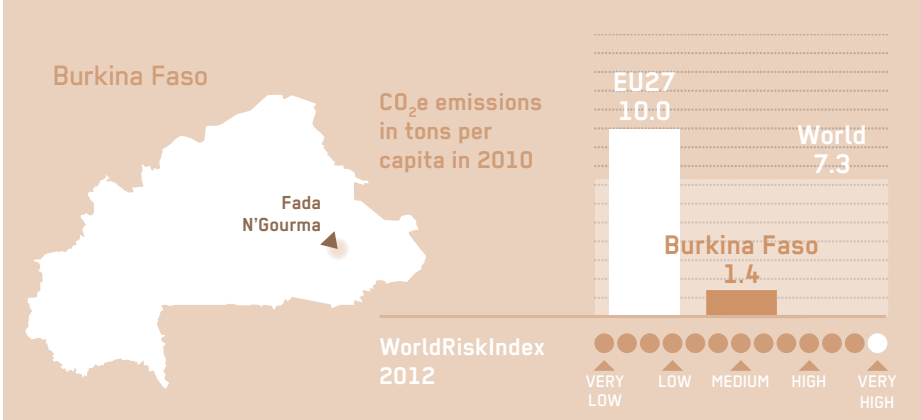
SCIENTIFIC BACKGROUND

IPCC experts agree that floods alternating with droughts will become a common phenomenon in the Sahel and sub-Sahel. For Burkina Faso, this has become their reality. Since 2007, the country has experienced repeated flooding.

- 2009: 273 mm rain falls on the city of Ouagadougou, about 150,000 victims in the city and thousands of people in the countryside.
- 2010: flooding in five of the country's 13 regions, with more than 26,000 victims.
- 2011-2012 crop year: late onset of the rains, poor distribution in time and their sudden and early cessation led to a 16% drop in agricultural production and 146 municipalities experiencing food insecurity.



Source: ARFA, Fada N'Gourma office



FROM OVERCONSUMPTION TO SOLIDARITY

Further information at www.overconsumption.eu

Burkina Faso 2: Tornadoes and instability

Ousséni Sayaogo

House destroyed by a tornado

© Ba Mahamadou

My name is Ousséni SAYAOGO, I am a farmer from Niessega.

On Monday, May 13, 2013, I was at Gourcy when I was called and told that my house had been destroyed by strong winds followed by rain. When I arrived, I saw the damage. The house was demolished, the roof sheeting scattered by the wind. I had just built this house for my family. Fortunately, there was no loss of life.

At the moment, I have no more money left to rebuild the house. Therefore I will have to wait until next year hoping to be able to rebuild. In the meantime, I ask myself where will my family and I stay.

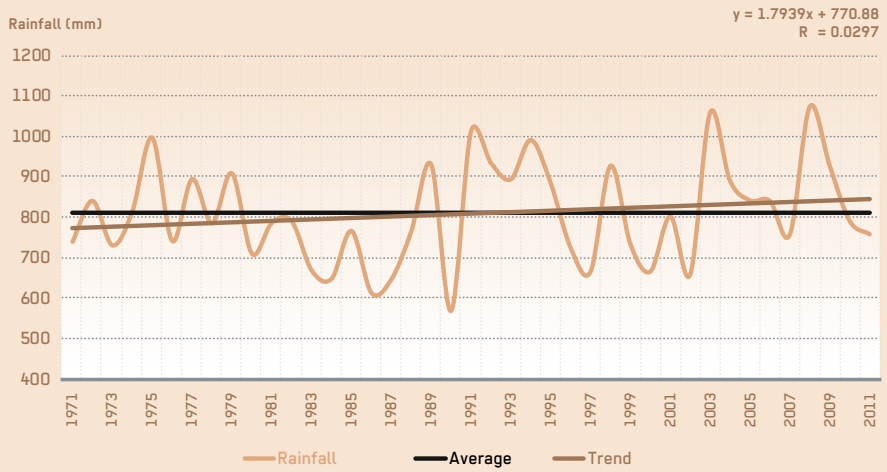
This is the first time I have witnessed something like that. It is abnormal for our village as it happened in May and the rainy season, even when it comes early, starts in mid-June.

SCIENTIFIC BACKGROUND

According to the 2007 IPCC report, in the short-term, the impact of climate change will be the product of increased frequency and intensity of extreme events such as droughts, floods, heat waves. For Burkina Faso this means unstable rainfall patterns and rising temperatures.

Rainfall instability means shorter rainy seasons and the concentration of rainwater over a short period. An important feature of rainfall instability is increased occurrence of rainy, stormy events accompanied by tornadoes at unusual times of the year.

Evolution of interannual rainfall in Fada N'Gourma



Burkina Faso 3: Droughts

Mahamadi Sawadogo

◄ Agricultural land degradation / Zondoma Province

I'm SAWADOGO Mahamadi, I come from the Plateau-Central region of Burkina Faso.

In my village, I was a farmer leader for local projects: recovery of degraded soil, reforestation and so on.

With climate change, things changed: drought, loss of vegetation cover, soil depletion. So I was forced to emigrate in search of better living conditions and I came to Bourguéogo in 2003. Here, while agro-climatic conditions are better, other problems arise, such as a lack of drinking water and roads, and as residents of the wildlife reserve, our land is exposed to damage by elephants. Without an agricultural plan, poor production practices will accelerate the degradation of natural resources. Will we also have to migrate from here?

SCIENTIFIC BACKGROUND

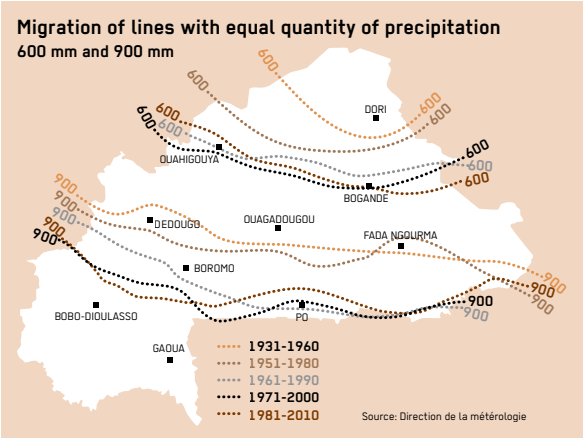
Throughout the North and Centre of the country, the sharp deterioration of the ecosystem has led to soil exhaustion and insufficient rainfall. This is at the root of food insecurity, which accentuates the phenomenon of poverty.

The immediate consequences of the disappearance of plant resources are the worsening effects of winds, including the Harmattan, increases in temperature, rainfall disturbance and decreased rainfall.

Frequent droughts have led to the migration of some of the population of the Plateau-Central to the west and the east. These migrants contribute significantly to the degradation of reception areas and will face many challenges.

ACTION

The Association for Agro-ecological Research and Training (ARFA) helps farmers increase their yields by ecological cultivation methods and better adapt to climate change.



Niger 1: pastoral crisis

Jobari Mokao,
a stricken nomadic herder

◄ Animals lack pasture and have lost weight and market value

I'm Jobari Mokao from Bermo village, which is north of Dakoro in pastoral areas of the Maradi region of Niger. For over ten years, successive years of drought have led to a shortage of fodder, a deterioration in the quality of our pastures and insufficient water for our animals, which have caused repeated pastoral crises.

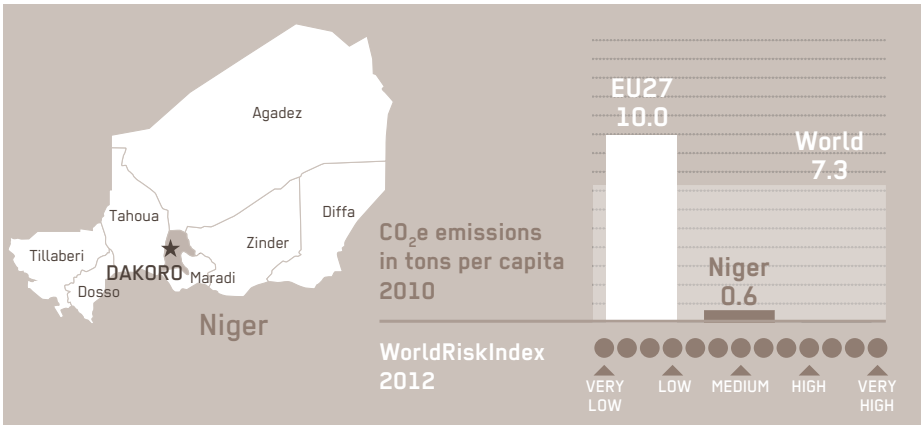
During these years of crisis, 30% to 100% of livestock is lost. If they survive, the strongest animals lose over 1/3 of their total weight and more than 90% of their value. Thus, at the height of the crisis in 2010, an animal worth 250,000 CFA francs was sold for no more than 10,000 CFA francs in our region.

Worse, after suffering through the dry season, it is often the thermal shock of the first rains that finally overwhelms the animals.

SCIENTIFIC BACKGROUND

Niger has suffered repeated food crises for a decade. These crises are the result of disruptions in rainfall: lack of rainfall, poor distribution of rainfall in space and time, short winters, floods and so on.

The 2011-2012 food crisis was characterised by a situation of food insecurity for 5.5 million people, or more than a third of the population. The forage deficit was estimated at 50% of livestock consumption needs. In 2010, a pastoral crisis had resulted in the loss of nearly 5 million cattle or a quarter of the stock. The poorest households lost nearly 90% of their animals, and hence their means of survival. These recurring pastoral crises have dire consequences on the lives of communities in pastoral areas such as in north Dakoro in the Maradi region of Niger.



Niger 2: Degradation of the ecosystem

◀ Loss of vegetation cover in Tillabéri Region

© CESAO -PRN

Finda LOMPO,
67 years old, from Niaktiré village

I'm Finda LOMPO, I was born around 1946 in Niaktiré, in Makalondi commune, in the Tillabéri Region of Niger:

The forest has lost its soul. It used to be full of gum arabic and wild fruits of inestimable value to local people.

Today, everything is gone. Worse, medicinal plants we use have disappeared.

For women, it has brought despair because with them they have lost their livelihood.

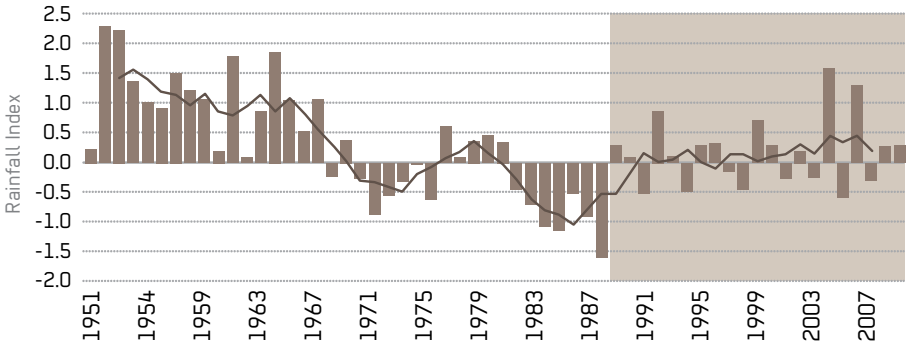
The forest is disappearing and we call for it to be saved.

SCIENTIFIC BACKGROUND

Floods, torrential rains, rivers breaking their banks and lower rainfall, which are the result of climate change, cause losses of woody and herbaceous plant species thereby deteriorating the quality of the ecosystem.

In Niger, about 100,000 to 120,000 hectares of forest land are lost every year, forcing 25% of the population and their livestock to live on degraded land with a deterioration in their living conditions, as is the case in Makalondi commune, in the Tillabéri Region.

The rainfall index determines how wet or dry the rainy season was for the period 1951 to 2007, in the Tillabéri Region:



Positive values indicate years in which rainfall exceeded the average for the period 1951 - 2007, and negative values indicate years in which it was lower. The chart shows that in 1969, Tillabéri Region, like the rest of the Sahel, shifted from a period of seasonal excess to one of recurring seasonal deficit with disastrous consequences for the ecosystem.

India 1: More intensive rains and floods

◀ Kedarnath flood

Ram Singh and his wife

At 7.18 pm on June 16 2013, Ram Singh heard the loudest crack in 45 years of his life. It was the deafening roar of a disaster. "I felt as if the sky had been torn asunder. Within seconds, a massive wall of water gushed towards Kedarnath Temple. Huge boulders flung into the sky like an explosion. In less than 15 minutes, thousands of people were swept away." Singh was on pilgrimage with 17 people from his hometown Ujjain in Madhya Pradesh. He is returning home with only five. "After having been in the temple, my son wanted to see the hills, so I took him along. My wife followed us," he says. "That is how we survived. I have no clue where the rest of my family are."

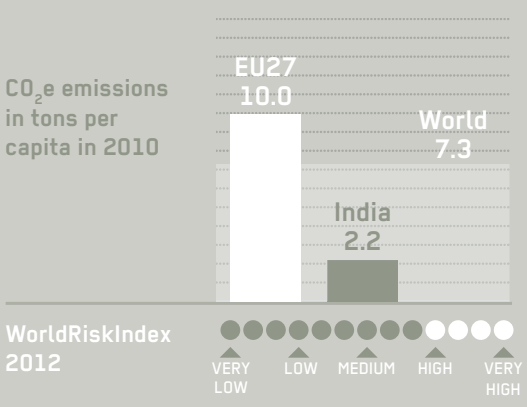
Scientific background

The Uttarakhand floods in June 2013: Surya Prakash, associate professor at the National Institute of Disaster Management (NIDM), says that the abnormally high amount of rain was caused by the fusion of Westerlies with the monsoonal cloud system. Additionally, a huge quantity of water was probably released from the melting of ice and glaciers due to high temperatures during May and June, which led to the breaching of moraine-dammed lakes. Several hundred people were killed; thousands went missing.

Other implications of climate change

Changing monsoon patterns in India: A trend analysis by S. K. Dash, Professor and Head of the Centre for Atmospheric Sciences, Indian Institute of Technology Delhi, shows that between 1951 and 2000, India witnessed short spells of heavy-intensity rainfall - lasting less than four days - during monsoons and fewer long spells with moderate rainfalls.

Having collected rainfall data from 2,599 stations between 1901 and 2005, India Meteorological Department (IMD) scientists warn of increased flood risk over most parts of India. "Increasing flood risk is now recognised as the most important sectoral threat from climate change." (Current Science, June 2013).



India 2: Ladakh – flash floods

◀ Ladakh's topography

© Papia Samajdar/CSE

◀ House in Leh, destroyed by flood

© Ladakh Art and Media Organisation (LAMO)

CASE STUDY

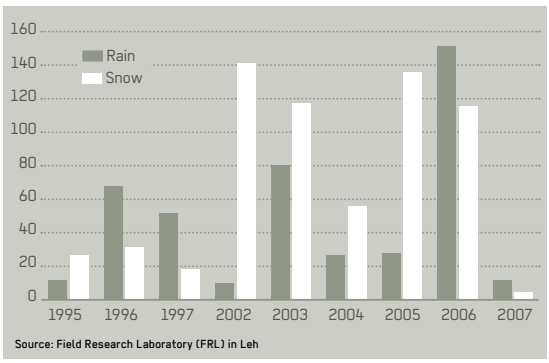
August 2010. A massive flood ravaged all of Leh, killing 257 people in the district, injuring thousands, and destroying property, infrastructure and livelihoods. The flood was the result of very heavy rain falling over a small area. There were other factors: bright sunshine in June and July melted the snow faster than usual, leading to more humidity. The temperature remained low, leading to the formation of dense clouds at a low height. As these clouds moved over glaciers, they condensed further, resulting in a cloudburst. Cloud bursts and thunder showers, unprecedented in the history of Ladakh, caused flashfloods in almost all the valleys along the Indus river of the Leh district.

REGIONAL CONTEXT AND BACKGROUND

Ladakh is located at the northwestern side of the Himalayas, flanked by four mountains ranges namely Himalayan, Zanskar, Ladakh and Karakoram with extremely elevated snow capped peaks. These mountain chains and the Tibetan plateau are home for 45 000 individual glaciers, covering an area of 90,000 sq km. They are the biggest storehouse for fresh water outside the polar caps, sometimes called "the water tower of Asia" or the "third pole", and feed the major rivers of Asia. But the Himalayan glaciers, the source of water for billions, are retreating faster than glaciers in any other part of the world (Cruz et al., 2007). Credit: NASA EROS Data Center, September 9, 2001.

EVIDENCE OF CLIMATE CHANGE IN LADAKH

Ladakh is a cold desert, with precipitation limited to as little as 2 days a year. In the past 20 to 25 years there has been a trend towards greater precipitation, but in a highly irregular pattern. For example, in 2002, there was almost no rainfall, but a large amount of snow. By contrast, the total precipitation recorded in 2006 was 150mm rain against an average over 1995 to 2007 of 32mm rain (Field Research Laboratory in Leh).



Source: Field Research Laboratory (FRL) in Leh

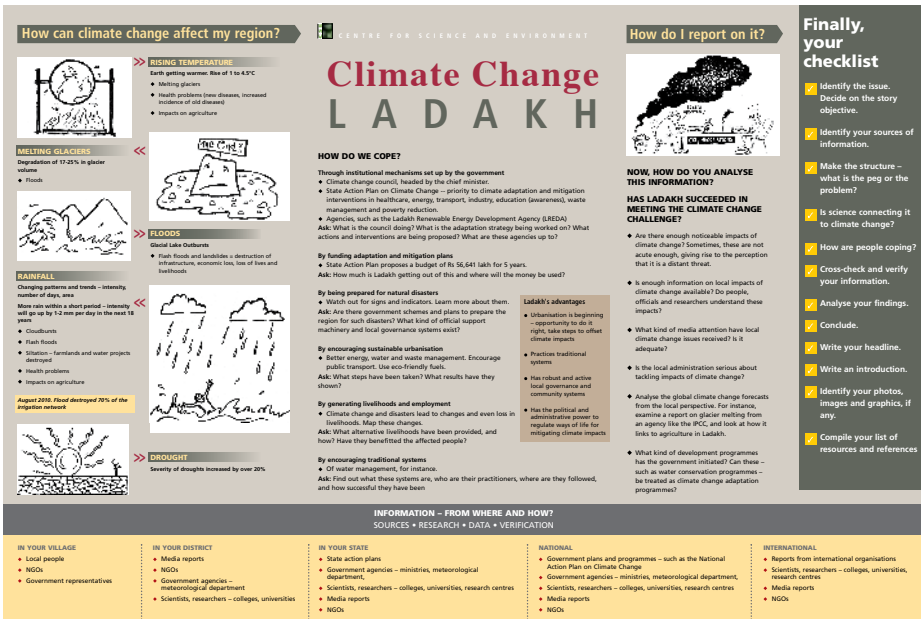
India 3: Ladakh – water reporters

Ringchen
water reporter from Domkar

Ringchen, water reporter from Domkar village, about 120 kms from Leh: "In the last 5 years, we have observed more water in our streams during the summer months of July and August. We came to know that the water was too much to hold in the streams and there were incidence of floods. At first we were clueless, but after talking to the elders, we were told that at the bottom of the glaciers on top of the mountains are very big lakes which are frozen through the year, and water can be seen only in August. When we went up, we saw numerous small and big lakes which had little water due to the lake outburst, but there were some with water. This showed us that because of rising temperature, snow is melting at a faster pace."

◀ Flood in Leh district: The area Tashi Gatsal in Choglamsar was worst hit by flashflood in 2010 on August 6, and in Tashi Gatsal alone about 200 people died.

© Ladakh Art and Media Organisation (LAMO).



How can climate change affect my region?

RISING TEMPERATURE
Earth getting warmer. Rise of 1 to 4.5°C
- Melting glaciers
- Health problems (new diseases, increased incidence of old diseases)
- Impacts on agriculture

MELTING GLACIERS
Degradation of 17-25% in glacier volume
- Floods

FLOODS
Glacial Lake Outbursts
- Flash floods and landslides = destruction of infrastructure, economic loss, loss of lives and livelihoods

RAINFALL
Changing patterns and trends – intensity, number of days, area
More rain within a short period – intensity will go up by 1-2 mm per day in the next 18 years
- Cloudbursts
- Flash floods
- Siltation – farmlands and water projects destroyed
- Health problems
- Impacts on agriculture

August 2010. Flood destroyed 70% of the irrigation network

DROUGHT
Severity of droughts increased by over 20%

CENTRE FOR SCIENCE AND ENVIRONMENT

Climate Change
LADAKH

HOW DO WE COPE?

Through institutional mechanisms set up by the government
- Climate change council, headed by the chief minister.
- State Action Plan on Climate Change – priority to climate adaptation and mitigation interventions in healthcare, energy, transport, industry, education (awareness), waste management and poverty reduction.
- Agencies, such as the Ladakh Renewable Energy Development Agency (LREDA)

Ask: What is the council doing? What is the adaptation strategy being worked on? What actions and interventions are being proposed? What are these agencies up to?

By funding adaptation and mitigation plans
- State Action Plan proposes a budget of Rs 56,641 lakh for 5 years.

Ask: How much is Ladakh getting out of this and where will the money be used?

By being prepared for natural disasters
- Watch out for signs and indicators. Learn more about them.

Ask: Are there government schemes and plans to prepare the region for such disasters? What kind of official support machinery and local governance systems exist?

By encouraging sustainable urbanisation
- Better energy, water and waste management. Encourage public transport. Use eco-friendly fuels.

Ask: What steps have been taken? What results have they shown?

By generating livelihoods and employment
- Climate change and disasters lead to changes and even loss in livelihoods. Map these changes.

Ask: What alternative livelihoods have been provided, and how? Have they benefitted the affected people?

By encouraging traditional systems
- Of water management, for instance.

Ask: Find out what these systems are, who are their practitioners, where are they followed, and how successful they have been

Ladakh's advantages
- Urbanisation is beginning – opportunity to do it right, take steps to offset climate impacts
- Practices traditional systems
- Has robust and active local governance and community systems
- Has the political and administrative power to regulate ways of life for mitigating climate impacts

How do I report on it?

NOW, HOW DO YOU ANALYSE THIS INFORMATION?

HAS LADAKH SUCCEEDED IN MEETING THE CLIMATE CHANGE CHALLENGE?
- Are there enough noticeable impacts of climate change? Sometimes, these are not acute enough, giving rise to the perception that it is a distant threat.
- Is enough information on local impacts of climate change available? Do people, officials and researchers understand these impacts?
- What kind of media attention have local climate change issues received? Is it adequate?
- Is the local administration serious about tackling impacts of climate change?
- Analyse the global climate change forecasts from the local perspective. For instance, examine a report on glacier melting from an agency like the IPCC, and look at how it links to agriculture in Ladakh.
- What kind of development programmes has the government initiated? Can these – such as water conservation programmes – be treated as climate change adaptation programmes?

Finally, your checklist
- Identify the issue. Decide on the story objective.
- Identify your sources of information.
- Make the structure – what is the peg or the problem?
- Is science connecting it to climate change?
- How are people coping?
- Cross-check and verify your information.
- Analyse your findings.
- Conclude.
- Write your headline.
- Write an introduction.
- Identify your photos, images and graphics, if any.
- Compile your list of resources and references

INFORMATION – FROM WHERE AND HOW?
SOURCES • RESEARCH • DATA • VERIFICATION

IN YOUR VILLAGE
- Local people
- NGOs
- Government representatives

IN YOUR DISTRICT
- Media reports
- NGOs
- Government agencies – meteorological department
- Scientists, researchers – colleges, universities

IN YOUR STATE
- State action plans
- Government agencies – ministries, meteorological department.
- Scientists, researchers – colleges, universities, research centres
- Media reports
- NGOs

NATIONAL
- Government plans and programmes – such as the National Action Plan on Climate Change
- Government agencies – ministries, meteorological department,
- Scientists, researchers – colleges, universities, research centres
- Media reports
- NGOs

INTERNATIONAL
- Reports from international organisations
- Scientists, researchers – colleges, universities, research centres
- Media reports
- NGOs

ACTION

The Media Resource Centre of CSE organised a workshop for journalists and water reporters in Leh (Ladakh) to orient them towards the signs of climate change in this fragile ecosystem. The water reporters are handpicked villagers from some villages around Leh, who have been active in learning about the recent weather pattern changes in their villages. As an attempt to train them as citizen's reporters, the MRC designed a format that can be carried to the field to do thorough research (see above). As an orientation towards issues such as climate change, which has become a part of their lives, but more importantly how to write about their indicators and signs so that there is some information engaging the public imagination, our attempt was to give them basic story writing skills, along with documenting the research at the ground level through them.

Bangladesh: Rising sea level and cyclons

Shadu Charan Mondol

◀ The dyke of Shingertoly

"My name is Shadu Charan Mondol. I am 72 years old and I live in Shingertoly close to the river Malancha in Bangladesh. My house is built on a dyke (see on the left of the photo). It has been destroyed six times already because the dyke didn't hold. With the rise of the tide, the sea pushes more and more up the river. The water level started rising 60 years ago, but in the last 10 years this rise has become stronger. The spring tides that occur in June and July are even more dangerous; they cause the highest water levels. We have already been forced many times to rebuild the dyke farther away from the river, but this is an ongoing problem and there is no place left for us to move further." (March 2009)

July 2009: The Mondol family in Shingertoly after the cyclon Aila.

Shadu Charan Mondol died in 2012

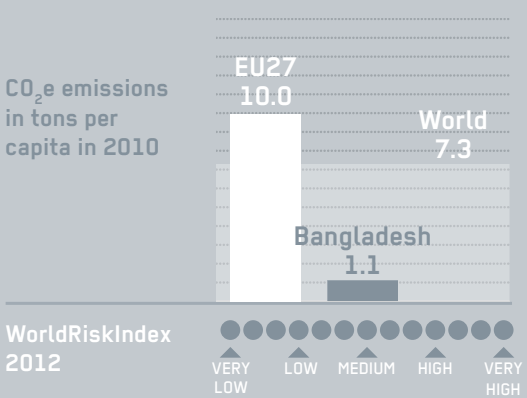
Scientific background: sea level rise

The global sea level rise affects Bangladesh to a much greater degree than the global average because of its geographical position: the Bengal SAARC Meteorological Research Council discovered, based on data from the last 22 years, that the sea level rises around 3 - 6 mm per year.

A lot of Bangladesh's territory is situated less than 2 meters above sea level and the sea can easily finger the land by the rivers. So, sea level rise causes a salinisation of the phreatic water in the coastal area and in the lower reaches of the rivers.

... and rising intensity of cyclons

The most homicidal storm surges during the 20th century worldwide have occurred in the Bay of Bengal on the coasts of India, Bangladesh and Burma, where extreme water levels are driven by tropical cyclones : Sidr in 2007, Nargis in 2008 and Aila in 2009 killed several hundred thousand people, due to the storm and the accompanying surge. The frequency of intense cyclones in the Bay of Bengal and their intensity during the end of the monsoon season until November have been increasing.



Luxembourg: summer droughts

◄ Summer drought 2011 in the Islek region near Walsdorf

© Guy Lambert, Walsdorf

Jeff Rohen
Rancher in Insenborn in Islek, Luxembourg's wettest and coldest region.

© Germain Mikes, ASTM / CA Luxembourg

Ours is a very thin, rocky soil on slate. It doesn't hold water and so we need regular rain, otherwise it dries out very quickly. The early summer of 2011 was extremely dry, and we had to buy hay for the cattle in 2011. But in the winter and spring it has been raining more, and last spring a heavy storm swept away our neighbour's potato fields that lay on a slope. In the 1980s, twice storms removed the roof of the barn, but the last few years it has been quieter. I also have the impression that the weather in the autumn is milder; it also seems that weather patterns change more quickly, are more irregular and that temperatures vary more than before.

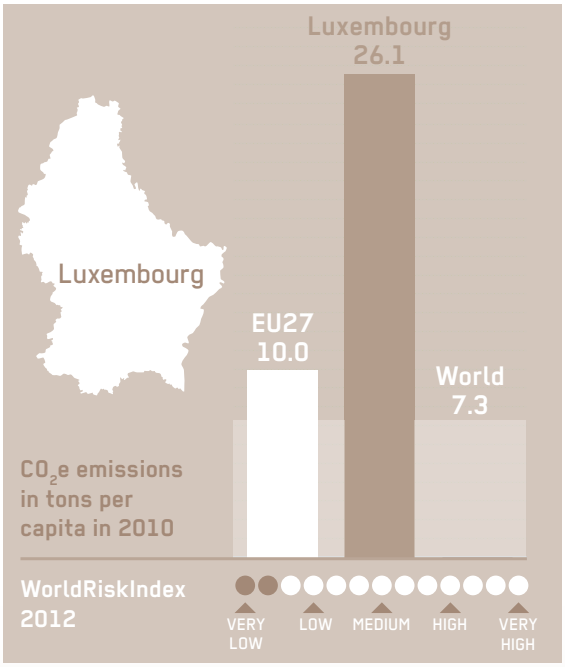
SCIENTIFIC BACKGROUND

In Luxembourg, the average long-term temperature rose from 8.3°C, over the three decades between 1961 and 1990, to 9.2°C between 1981 and 2010, so, by 0.9°C (measured at the airport Findel) over a twenty year period; temperatures rose particularly during winter. Vegetation periods are approximately two weeks longer now.

As a result of more frequent westerly winds during the winter, since the 1980s, winter precipitation has increased, while summers have become drier. This resulted mainly as of the 1990s during winter in higher water levels in rivers and increased flooding. In the summer months, lower water levels and more frequent droughts have led to increased water shortage. The risk of soil erosion continues to rise.

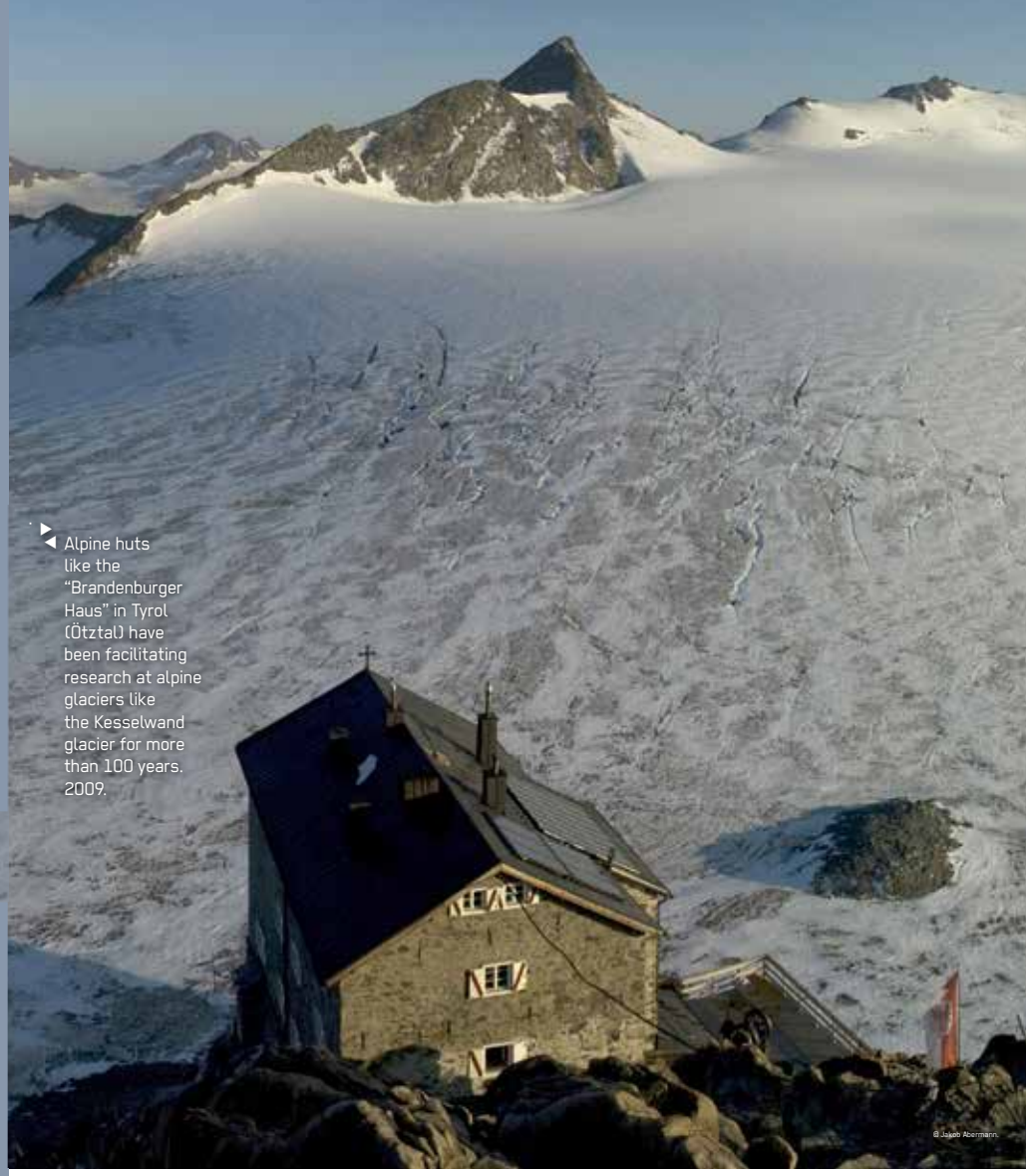
OTHER IMPLICATIONS OF CLIMATE CHANGE

Over the past 50 years, storms have become more common and stronger («Kyrill» wrecked great damage in January 2007). Warming leads to earlier flowering plants and bird breeding and the migration of animals and plants from the Mediterranean area.



Austria: Melting alpine glaciers

Alpine huts like the "Brandenburger Haus" in Tyrol (Ötztal) have been facilitating research at alpine glaciers like the Kesselwand glacier for more than 100 years. 2009.


© Jakob Abermann.

Anna Pirpamer,
manager of the "Brandenburger Haus"


© Anna Pirpamer.

"I have managed the hut „Brandenburger Haus" for four years now. From year to year I have noticed that many mountains, ridges and passages which used to be either completely, or to a very large extent covered by ice and snow, now are showing a lot of unconsolidated slip rock, and the danger of falling rocks is rising.

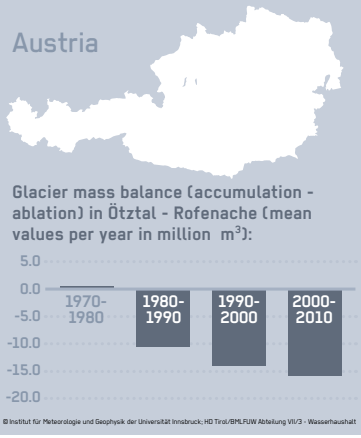
The biggest problem by far for the administration of the hut will be provoked by the disappearance of a little ice field situated right above the hut. It is from this ice field that we get our general use and drinking water. This is the only practical source for us. Once this has dissappeared, big infrastructural measures will have to be implemented to reestablish access to water."

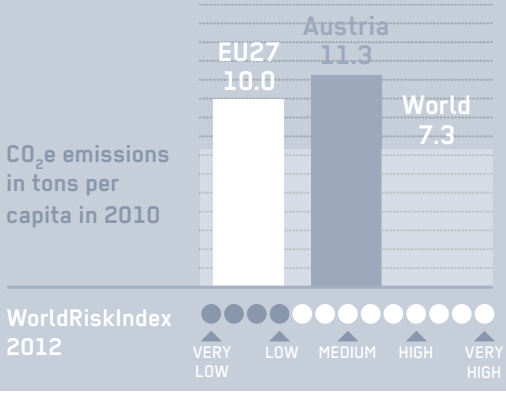
BACKGROUND

The Kesselwandferner glacier at present is up to 140 m thick, 4400 m long and it flows between 5 and 90 m a year from an altitude of 3500 m down to 2700 m above sea level. Though still accumulating mass in its upper parts, it is losing ice mass as a whole due to accelerated melting processes in the lower parts. It is one of the 93 out of surveyed 95 glaciers in Austria that has shrunk in 2012. In the last 10 years the Kesselwandferner glacier and 2 more glaciers nearby lost 15 million m^3 of ice annually.

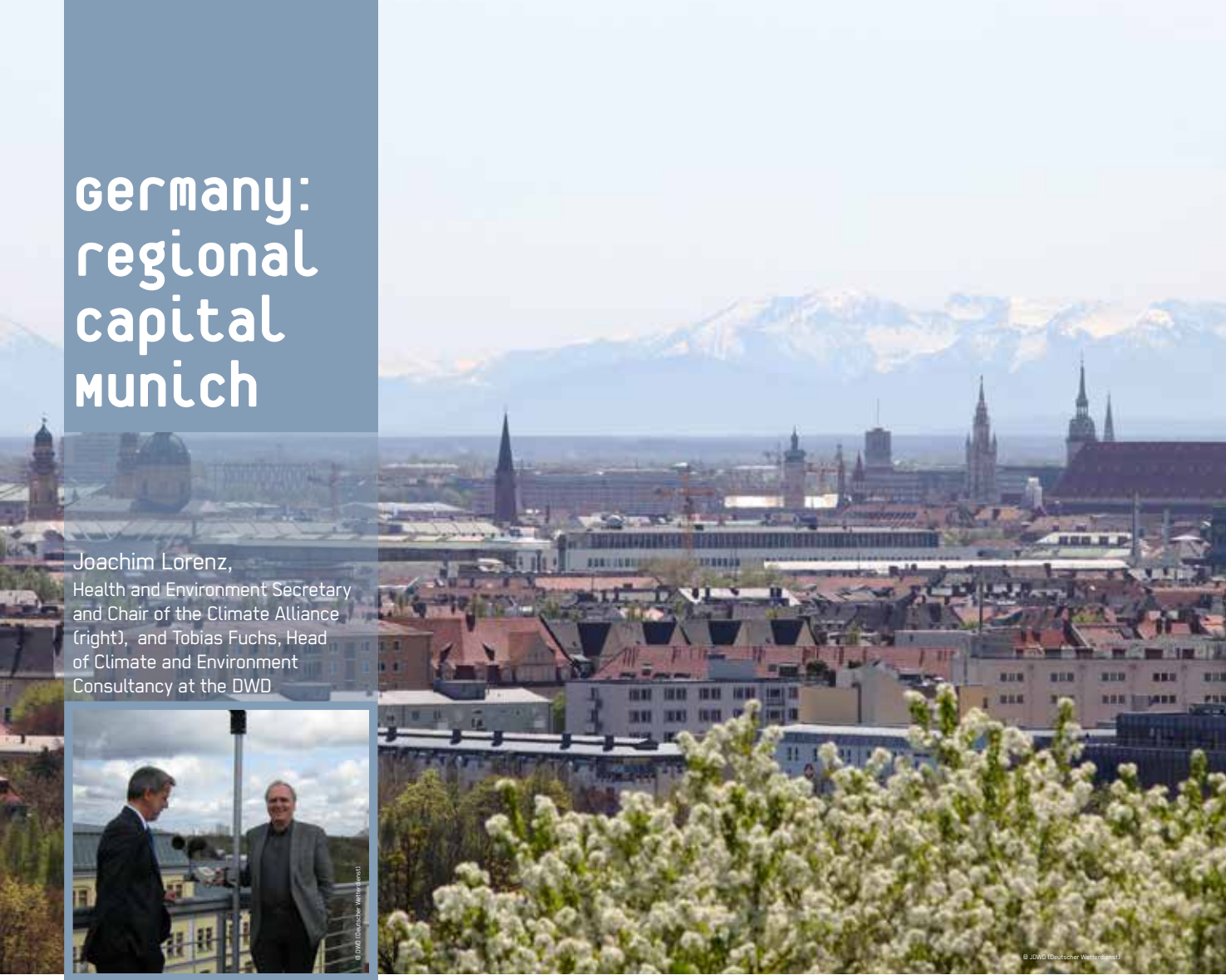
"The reason for the retreat is the above average air temperatures in the last years." declares Dr. Andrea Fischer, head of the Glacier Monitoring Service (of the Austrian Alpine Club).

Since alpine glaciers mainly melt in summer time, it is in July and August where the melting glacial ice has a special significance: then, up to 7 % of the water in the River Danube at Passau comes from alpine glaciers.





Germany: regional capital Munich



Joachim Lorenz,
Health and Environment Secretary and Chair of the Climate Alliance (right), and Tobias Fuchs, Head of Climate and Environment Consultancy at the DWD

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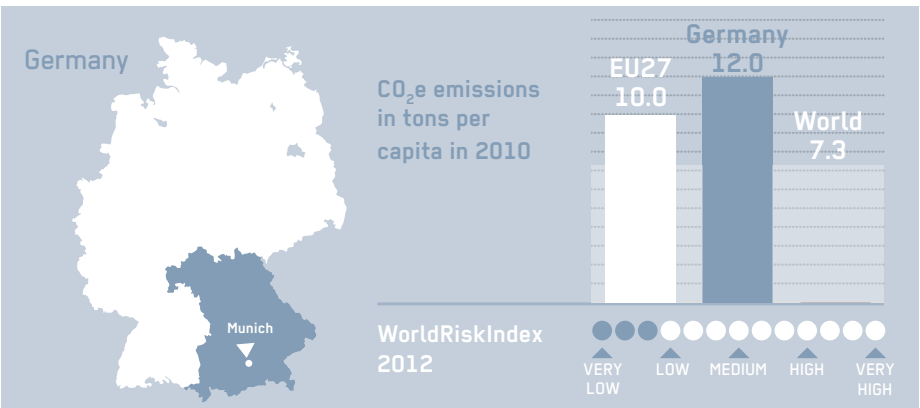
The recent floods in June 2013 created runoff from the river Isar of more than 8 times the normal outflow, causing the groundwater level to rise, which resulted in lower-lying parts of the city experiencing basement flooding. The sewers can not absorb heavy rainfall of 50 litres/m2 in the space of a few hours, which leads to flooding of roads. These heavy rains are predicted in regional climate models on this scale for the future.

SCIENTIFIC BACKGROUND

In Bavaria, the mean air temperature and daytime temperature will increase in the future - especially in winter - which will have a major impact on the interim storage of precipitation in the form of snow and the runoff regime of the Alpine rivers. Depending on the region of the flow, the amount of water may increase up to 35%.

ACTION

In recent years, the city of Munich has created extensive retention areas for future floods while doing restoration work on the Isar; at the time, new floodplains were identified for two other rivers through inter-municipal cooperation. Munich also cooperates with the German Weather Service in modeling the future urban climate. By 2015, the DWD will be collecting data and simulating the future thermal situation. Munich's location at the edge of the Alps is particularly relevant. The information will be central to residential planning and be of help with concerns about construction and landscaping. Munich hopes to shed light on how improved air exchange, such as through fresh air corridors, can help avoid the overheating of inner-city areas - as in the «summer of the century» in 2003.



FROM OVERCONSUMPTION TO SOLIDARITY

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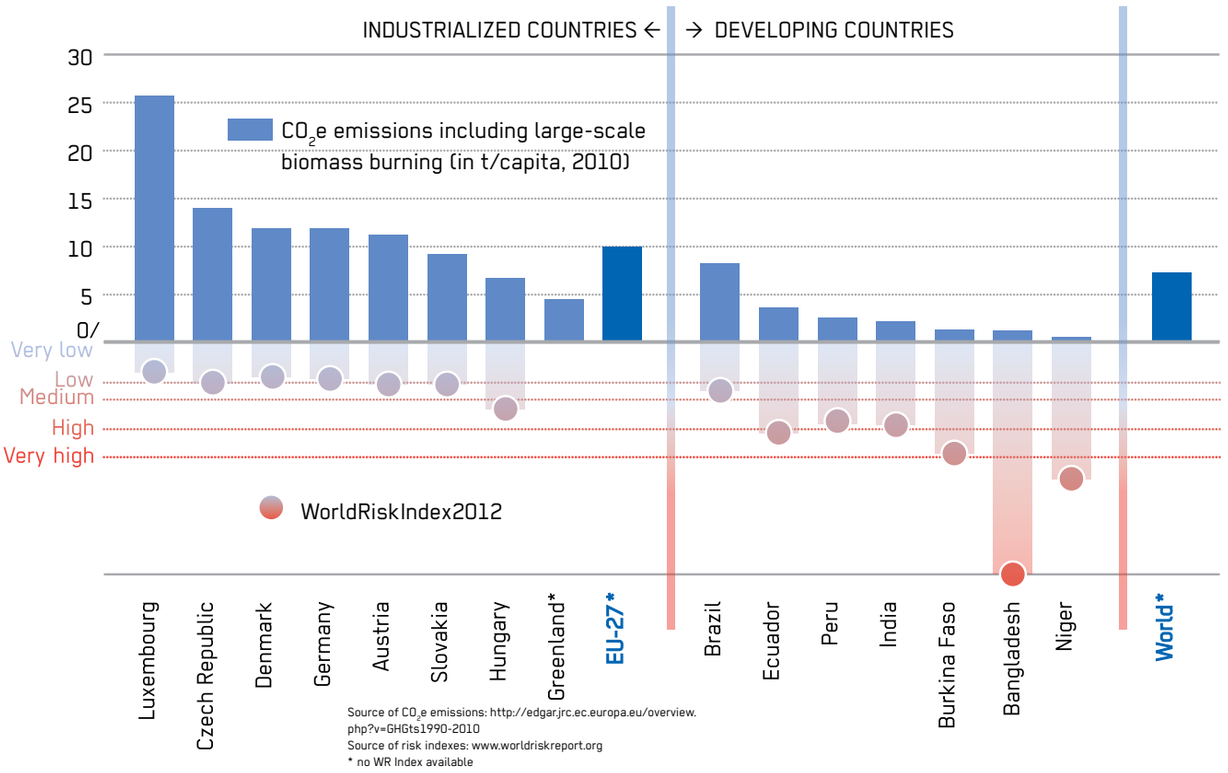
conclusion 1 common but differentiated responsibilites

GLOBAL OVERVIEW ON PER CAPITA EMISSIONS AND RISKS



Source of CO_2e emissions: http://edgar.jrc.ec.europa.eu/overview.php?v=GHGts1990-2010
Source of risk indexes: www.worldriskreport.org
* no WR Index available

The countries that bear the greatest responsibility for climate change are industrialized countries and the most vulnerable ones are developing countries. This unequal situation is the point of origin for the fundamental principle in the United Nations Framework Convention on Climate Change from 1992 →→→

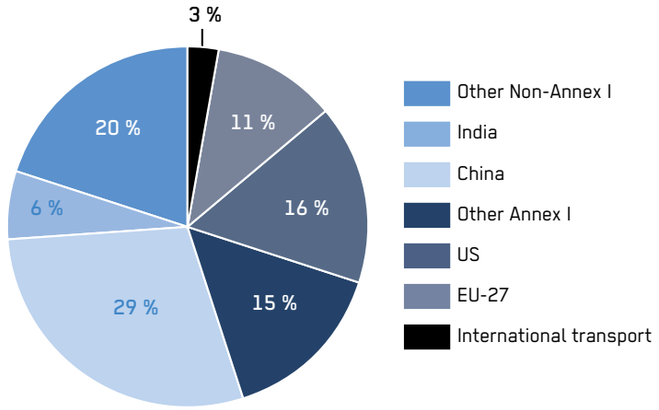
United Nations Framework Convention on Climate Change

"Article 3 PRINCIPLES
1. The Parties should protect the climate system for the benefit of present and future generations of humankind on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly. the developed country Parties should take the lead in combating climate change and the adverse effects thereof."

One of the meager results of the 2009 climate summit in Copenhague was the industrialized (so-called "Annex I") countries' commitment to support developing (so-called "Non-Annex I") countries with the amount of $100 billion per year by 2020 for mitigation and adaptation actions ("Long-term financing").

IN 2011, GLOBAL EMISSIONS TOTALLED 33.9 BILLION TONNES CO_2. WHERE DO THEY COME FROM?

DISTRIBUTION OF GLOBAL CO_2 EMISSIONS 2011



Source : CSEIndia 2012

In 2011, Annex I (industrialized) countries, which account for about 20% of the global population, produced 42% of emissions. Non-Annex I (developing) countries, which account for 80% of the global population, produced 55% of global CO_2 emissions. (Source: CSEIndia, 2012)

The so-called "emerging" countries' emissions are growing faster than the world average: Chinese CO_2 emissions more than tripled between 1990 and 2010, and China overtook the United States in 2007 as the world's largest annual emitter of energy-related CO_2, although in cumulative and per-capita terms the United States remains the largest emitter. (Source: IEA, CO_2 Emissions from Fuel Combustion, 2012)

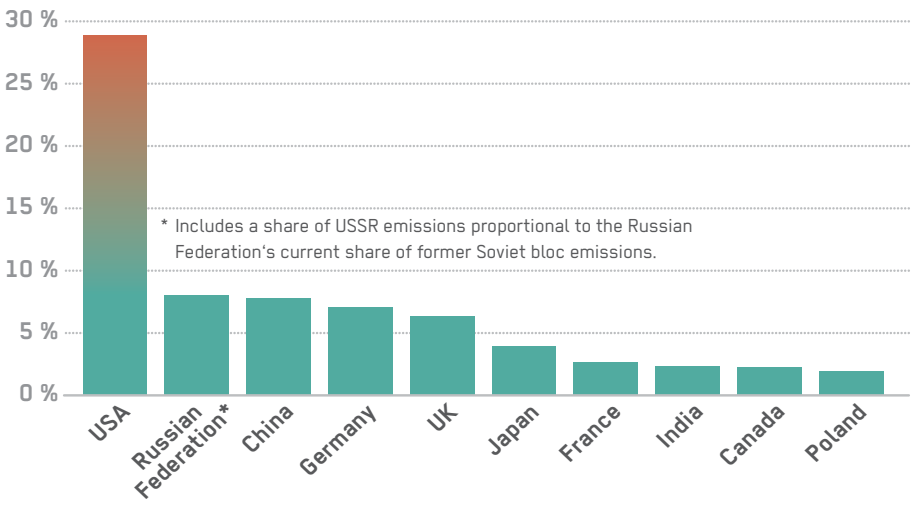
POPULATION AND CO_2 EMISSIONS IN 2011 (%):

Developing countries	Global population	Global emissions
China	19 %	29 %
India	18 %	6 %
Total Non-Annex I	80 %	55 %
Industrialized countries	**Global population**	**Global emissions**
USA	4 %	16 %
EU-27	7 %	11 %
Total Annex I	20 %	42 %

conclusion 2

who emitted the carbon dioxide that is currently in the atmosphere causing climate change?

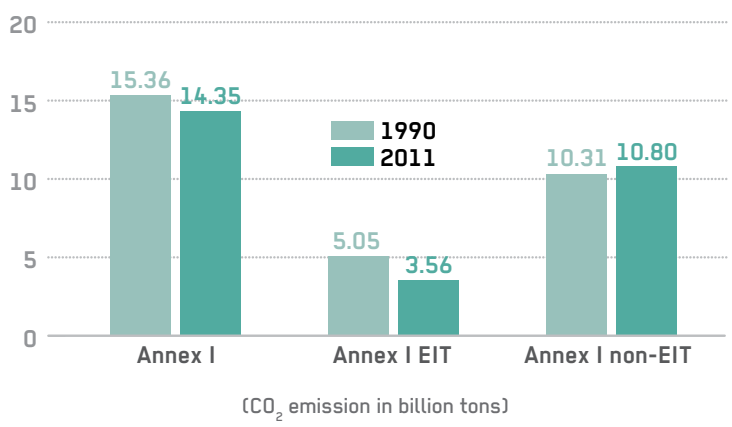
SHARE OF GLOBAL CO_2 EMISSIONS 1840-2006 (%)



Note: The important difference between CO_2 emissions and emissions resulting from land-use change is that CO_2 emissions are "importing" fossil carbon from earlier earth ages into our recent atmosphere, while emissions from land-use change just make the carbon change its position inside the carbon circle (from being stocked in present vegetation to being a gas in the present atmosphere).

RICH COUNTRIES HIDING BEHIND COLLAPSED ECONOMIES

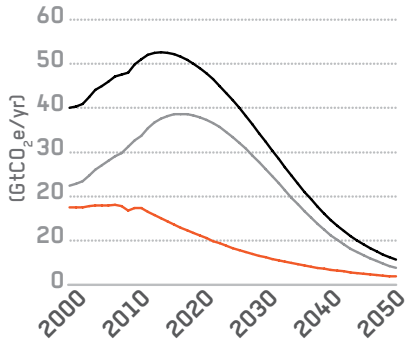
- Annex I total emissions in 2011 are 6.5 % below 1990 levels.
- Annex I EIT (Economies in Transition: former USSR and eastern European countries) emissions in 2011 are 29.5 % below 1990 levels because of the collapse of the former USSR and eastern European countries.
- Annex I non-EIT (developed Western countries) emissions in 2011 are actually 4.8% above 1990 levels. Rich developed countries are hiding behind the collapsed economy of the former USSR and eastern European countries in claiming they are meeting their Kyoto targets. (CSEIndia)



development in the greenhouse? the south's dilemma:

ANNUAL GLOBAL EMISSIONS

The black line shows a 2°C emergency pathway, in which global greenhouse gas emissions peak by 2015 and fall to about 90 % below current levels by 2050 in order to avoid a global warming above +2° C (most of developing countries want to avoid +1.5°C). The red line shows Annex 1 emissions declining to a level at 90 % of 1990 in 2050. The grey line shows, by subtraction, the emissions space that would remain for developing countries. The later industrialized countries' emissions peak, the less space in the atmosphere that remains for developing countries (Source: gdrights.org).



OUR ROLE AND RESPONSIBILITY IN EUROPE

A practical tool to quantify the Climate Convention's principle of "common, but differentiated responsibility and respective capacity" is the "Greenhouse Development Rights Framework" (GDR), developed by the Stockholm Institute of Environment and EcoEquity. It indicates each country's share in resolving the global climate problem while respecting the rights of poor people, living below a 'development threshold', to achieve better life conditions:

A country's aggregate 'capacity to act' is defined as the sum of all individual incomes, excluding all income below the 'development threshold'. Responsibility is similarly defined as cumulative emissions since 1990 excluding emissions that correspond to consumption below the development threshold. These measures of capacity and responsibility are then combined (weighted 50/50) into a single indicator of obligation, in a 'Responsibility Capacity Index' (RCI).

The table below shows the percentage shares for selected (groups of) countries based on CO_2e emissions including land-use change emissions for 2010 (with a development threshold of $7,500 PPP/y). Accordingly, the European Union should shoulder a quarter (24.9 %) of the combined global efforts to tackle climate change, to be achieved not only through own emissions reduction but also by supporting developing countries' efforts to reduce emissions.

	Population (% of global)	GDP (% of global)	Capacity (% of global)	Responsibility (% of global)	RCI (% of global)
EU-15	5.7	23.6	27.6	17.8	22.7
EU-12	1.5	2.0	1.8	2.5	2.1
EU-27	7.2	25.6	29.4	20.3	24.9
USA	4.6	22.8	28.9	31.4	30.2
China	19.6	9.8	6.3	4.4	5.4
India	17.6	2.7	0.2	0.2	0.2
Brazil	2.8	3.4	2.6	4.8	3.7
World	100.0	100.0	100.0	100.0	100.0

(Source: gdrights.org/calculator).

conclusion 3 what you can do:

- Reduce your own emissions.
- Join NGOs or other civil society movements and your municipality's committees and councils.
- Keep yourself informed and be active as national, European and global citizen, for instance by engaging on climate issues in movements and political parties.
- Participate in actions, subscribe petitions to political authorities or support NGOs for sustainable global development.

The following NGOs contributed to this exhibition:

ASTM / Climate Alliance Luxembourg
www.astm.lu / www.klimabuendnis.lu

Climate Alliance of European Cities with Indigenous rainforest peoples (CAI)
www.climatealliance.org

Climate Alliance Austria
www.klimabuendnis.at

Crossing Borders / Denmark
www.crossingborders.dk

Nadace Partnerstvi / Czech R.
www.nadacepartnerstvi.cz

Friends of the Earth-CEPA / Slovakia
www.prateliazeme.sk/cepa

Védegylet Egyesület / Hungary
wwvedegylet.hu

Formabiap-Aidesep / Peru
www.formabiap.org

FOIRN / Brazil
www.foirn.org.br

EcoCiencia / Ecuador
www.ecociencia.org

ARFA / Burkina Faso
www.arfa-ong.org

RDGRN / Niger
www.cesao-ai.org

CSE / India
www.cseindia.org

The exhibition was co-financed by EuropeAid: http://ec.europa.eu/europeaid

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THANK YOU VERY MUCH FOR YOUR ATTENTION!

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