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Innovative Approaches - Broad Experience - Clear Impacts





# 01 Climate Change and Development

The impacts of climate change are being felt around the world. According to the Intergovernmental Panel on Climate Change (IPCC), average global temperatures have already increased significantly compared to pre-industrial times and will continue to rise.

Greenhouse gas emissions caused by industry and other human activities need to be decoupled from economic growth to prevent further climate change. Greenhouse gases emitted in past decades will continue to cause climate change in the future. Even if emissions are reduced sharply, the temperature increase will influence precipitation patterns in many regions of the world, resulting in storms, floods and droughts and possibly causing sea levels to rise by up to 1.5 metres by the end of the century.

Developing countries, which often lack the financial resources and adequate human capacity to undertake adaptation measures, will be affected most by the impacts of climate change – even though they have contributed the least to global emissions. Climate change impacts threaten to compromise existing and future development successes and undermine attainment of the UN Millennium Development Goals (MDGs). Making developing countries more resilient is therefore imperative to ensure achievement of development objectives.

While it is crucial that major industrialised emitting nations significantly reduce their emissions, many of the most cost-efficient mitigation opportunities exist in developing countries. These opportunities should be seized with the help of the international community. Fast-growing transition economies, whose share of global emissions is increasing rapidly, pose an additional challenge.

Sustainable development can be achieved only if effective measures to adapt to climate change and mitigate greenhouse gas emissions are in place. International cooperation can play a decisive role in combating climate change and dealing with its impacts. Together with its partners, GIZ successfully designs climate change strategies and makes innovative and effective contributions to climate change adaptation and mitigation actions.



Adaptation through mangrove planting in the Philippines

## 02 GIZ – A Competent Partner for Effective Climate Change Solutions

### GIZ Competencies and Experience

Committed to sustainable development, GIZ supports its partners in tackling the challenges posed by climate change. GIZ implements tailor-made solutions to support adaptation to climate change and mitigation of greenhouse gas emissions in close cooperation with its partner countries. It implements projects on behalf of its main commissioning party, Germany's Federal Ministry for Economic Cooperation and Development, and many other German and international institutions. GIZ has established strong international partnerships and offers a combination of innovative approaches, an experienced staff and well-established techniques in order to carry out high-quality climate change programmes. Thanks to its long-standing sectoral expertise and implementation experience, GIZ provides transparent, efficient and effective support to partner countries that encourages national ownership and generates clear impacts. GIZ not only strives for sustainable and measurable results in the area of climate change - its projects and capacity building measures also generate co-benefits for transitioning to a green economy and following resource-efficient and low-emission growth paths.

#### Sectoral Expertise and Long-standing Experience

GIZ draws on many decades of experience of dealing with climate-related issues and has a track record of successful climate change projects. Even though the challenges posed by climate change are immense and some of the issues are new, some solutions and many technologies needed to stabilise global warming are well known and already available. GIZ not



PHOTO: GIZ/ANDREAS KÖNIG

Irrigating newly planted palm trees in Jordan



PHOTO: GIZ

In the International Year of Biodiversity 2010, the program undertook awareness raising activities for students in Indonesia



PHOTO: FANIEL - JOSÉ CASTAÑEDA

Flood in the city of Malabon, Philippines



PHOTO: GIZ

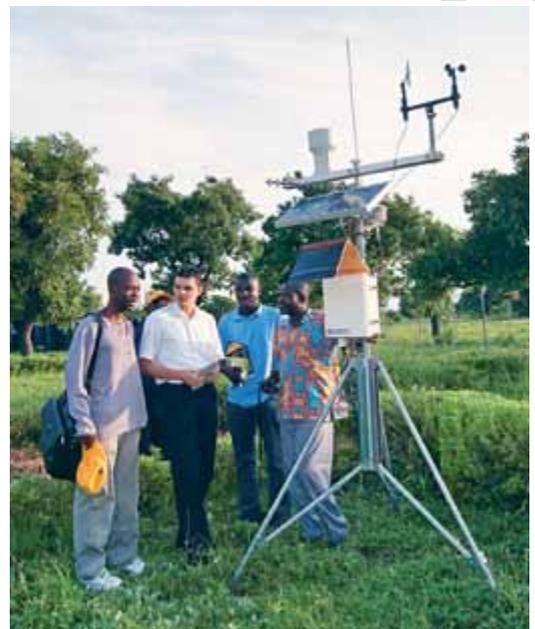
GIZ supports renewable energy policies in partner countries

only has proven expertise working in climate-relevant sectors such as renewable energies, energy efficiency, forest conservation, water management, agriculture, biodiversity conservation, tourism, health and good governance. It also offers implementation experience operating out of more than 130 country offices worldwide, putting into practice adequate, efficient and locally appropriate solutions. Examples of GIZ's expertise in climate-relevant sectors are numerous; the following provide only a glimpse of GIZ's climate change work:

- Over 5 million people worldwide have gained access to sustainable and climate-friendly energy supply with the help of solar home systems and improved cooking technologies for households, schools and health stations thanks to the Energising Development Programme initiated by GIZ and the Dutch Directorate General for International Cooperation (DGIS).
- In Indonesia, GIZ supported sustainable forest management and the reduction of greenhouse gas emissions from deforestation and forest degradation through a combination of policy guidance, strategy development, and institution building.
- GIZ helped Peru to develop future climate scenarios, collect and disseminate climate data, initiate adaptation measures in agriculture and water management, and integrate adaptation into local and regional planning processes. The implemented measures enhanced the effective use of water and enabled user groups to save up to 3,500 m<sup>3</sup> water per hectare - the equivalent of 25 bathtubs.



GIZ works with coffee farmers to help them adapt to climate change impacts



Weather station of the IIPACC project in Ghana

PHOTOS: GIZ/MICHAEL MEYER (LEFT); GIZ

### Innovative Approaches

Climate change raises new questions. How can the necessary decoupling of greenhouse gas emissions from economic growth be achieved? What should the priorities be when investing scarce resources in adaptation? How can mitigation and adaptation measures be best integrated into national and local policy? How can individuals and organisations deal with this complex problem? Which competencies need to be developed? Together with its partners, GIZ develops and seeks practice-oriented solutions to these new questions and challenges. It develops pilot projects with innovative approaches and feeds the results back into national and international policy. Conversely, results from policy advice at the national level will be fed into work at the regional and project levels. This action allows GIZ to consolidate experiences and develop new methods and techniques that are modified to its partner's needs at the micro, meso and macro levels.

GIZ closely monitors and evaluates project experiences and fosters constant improvement processes in order to optimise its projects. In the realm of mitigation, GIZ incorporates measurable, reportable and verifiable (MRV) monitoring of impacts into its projects. In adapting to climate change, GIZ uses its own approach to monitor impacts, which has been customised for technical cooperation projects.

- The Climate Proofing for Development (CP4Dev) tool developed by GIZ helps to integrate climate change considerations into planning processes in partner countries. The method has already been successfully implemented in more than 12 countries. In Vietnam, CP4Dev was used to incorporate climate change aspects into land use planning and ecosystem-based adaptation. In Morocco, this method supported the integration of climate change aspects into the country's national development strategy.
- GIZ also strives to reduce its own emissions: GIZ has analysed all projects with regard to their impact on greenhouse gas emissions since January 2011, thereby identifying the potential to cut unnecessary emissions in the first place.

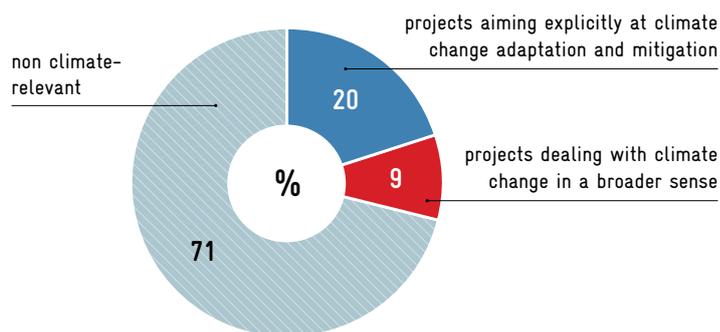
### Working in Effective International Alliances

GIZ is building alliances with leading international institutions from the political, scientific, non-governmental and business spheres in order to pool knowledge, combine comparative strengths and be able to respond even more efficiently to the challenges posed by climate change. GIZ hence maintains a network of highly qualified experts, consultants and partners to scale up responses to climate change and provide cutting-edge solutions. For example, GIZ developed ci:grasp, the Climate Impacts: Global and Regional Adaptation Support Platform, in partnership with the Potsdam Institute for Climate Impact Research (PIK). ci:grasp provides a web-based information service about climate change stimuli, climate impacts and adaptation measures with the aim of supporting decision-makers and planners in partner countries.

## GIZ's Climate Change Portfolio

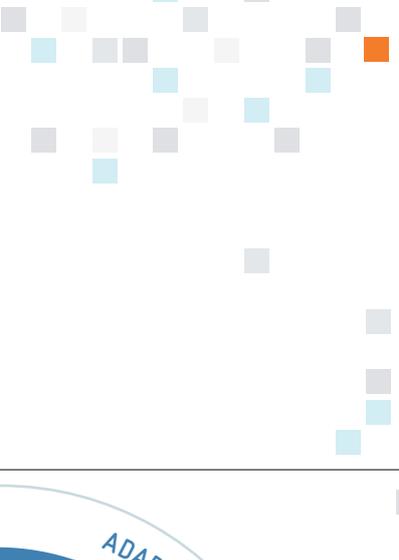
GIZ's climate portfolio is steadily expanding. At the beginning of 2011, GIZ was implementing more than 1,200 projects<sup>1</sup> around the world, about 350 of which were directly or indirectly contributing towards the mitigation of greenhouse gases or climate change adaptation. Early in 2011, climate-relevant projects made up a total volume of more than EUR 1.5 billion. Projects with the explicit aim of adapting to and mitigating climate change accounted for about 20% of GIZ's overall project portfolio.

### GIZ's Climate Change Portfolio

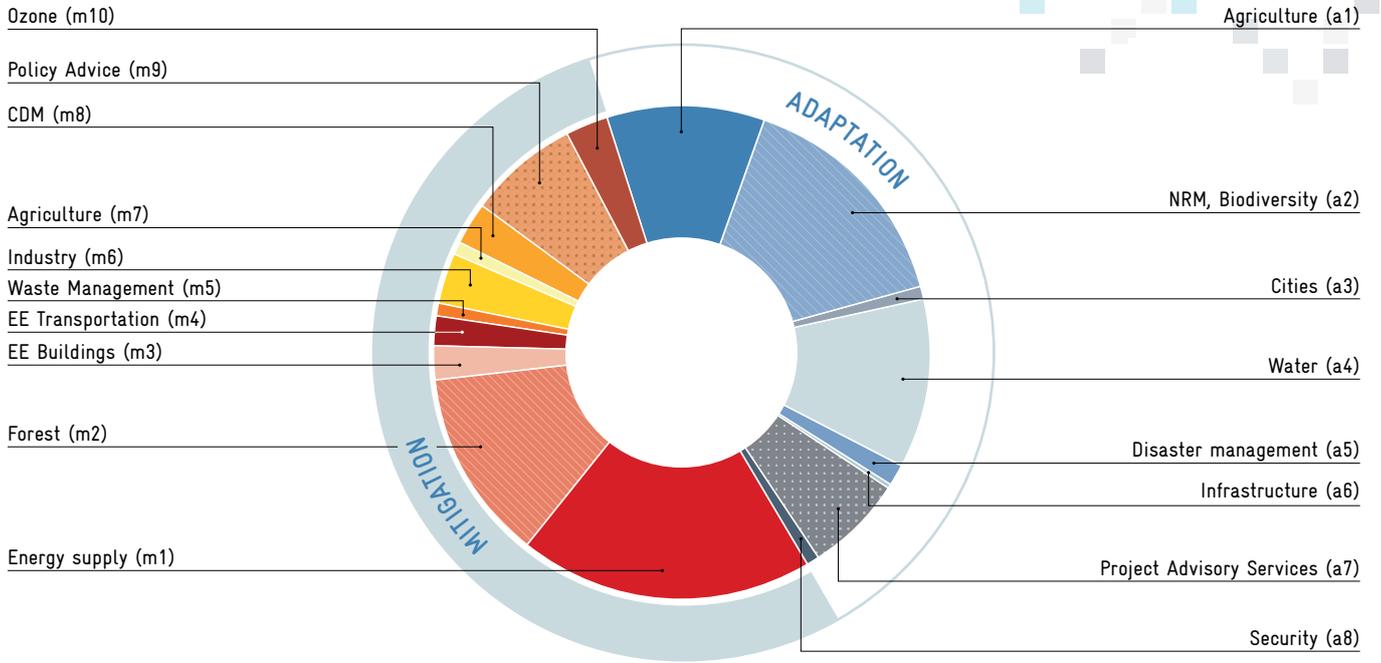


<sup>1</sup> The numbers contained in this paragraph refer only to the project portfolio of GIZ

Forty-six per cent of projects within GIZ's climate-related portfolio aim to reduce greenhouse gas emissions, while 54% are adaptation projects. GIZ's climate change mitigation projects focus on energy supply and efficiency, forest-related programmes and policy advice. GIZ has been concentrating its adaptation efforts on the realms of water, agriculture, natural resource management and policy advice. Cross-sector policy advice on adapting to climate change and/or mitigating greenhouse gas emissions, support for accessing and structuring climate finance and organisational support for coordinating institutions in the field of climate change is becoming increasingly important.

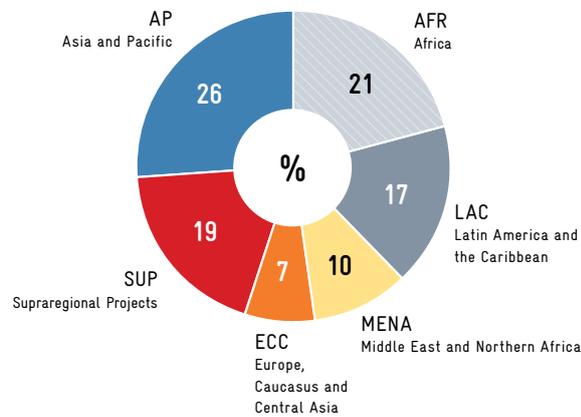


### Climate Change Activities by Sector



GIZ is a renowned partner around the world in the area of climate change activities. In early 2011, about one third of GIZ's climate change projects were being implemented in the Asia-Pacific region, followed by Africa (21%), Latin America and the Caribbean (17%), the MENA region (10%), and Europe and Central Asia (7%). Two thirds of GIZ'S climate-related projects are being carried out on behalf of the German Federal Ministry of Economic Cooperation and Development (BMZ).

### Climate Change Activities by Region





## 03 GIZ at Work - Corporate Profile

### Who We Are

Working efficiently, effectively and in a spirit of partnership, GIZ supports people and societies in developing, transition and industrialised countries in shaping their own futures and improving living conditions. Established on 1 January 2011, GIZ brings together under one roof the long-standing expertise of the Deutscher Entwicklungsdienst (DED) GmbH (German Development Service), the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH (German technical cooperation) and InWEnt – Capacity Building International, Germany. As a federally owned enterprise, GIZ supports the German Government in achieving its objectives in the field of international cooperation for sustainable development. The company is also engaged in international education work around the globe.

GIZ operates in more than 130 countries around the world, employing approximately 17,000 staff members worldwide, more than 60% of who are local personnel. In addition, GIZ employs 1,135 development workers, 750 integrated experts and 324 returning experts, 700 local experts in partner organisations and 850 weltwärts volunteers.

### Making Development Effective

GIZ supports its partners by offering demand-driven, tailor-made and effective services for sustainable development. It applies a holistic and value-based approach to ensure the participation of all stakeholders and ownership of long-term development goals. In doing so, GIZ takes account of political, economic, social and ecological dimensions as it supports its partners at local, regional, national and international level.

GIZ operates in many fields, including economic development and employment; governance and democracy; security, reconstruction, peace building and civil conflict transformation; food security, health and basic education; and environmental protection.

Among its services, GIZ recruits integrated and returning experts for positions in its partner countries and also places development workers with partner organisations. In the field of climate change, the Centre for International Migration and Development, a joint operation of GIZ and the German Federal Employment Agency, has placed 53 highly qualified experts focusing on climate change mitigation and adaptation in partner country organisations.

### Our Clients

Most of GIZ's activities, conducted in close cooperation with and at the request of Germany's partner countries, are carried out on behalf of the Federal Ministry for Economic Cooperation and Development (BMZ), which is the main commissioning party. GIZ is also commissioned by other German ministries – in particular the Federal Foreign Office (AA), the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) and the Federal Ministry of Education and Research (BMBF) – as well as German federal states and municipalities, and public and private sector clients both in Germany and abroad. These include the governments of other countries, the European Commission, the United Nations and the World Bank. GIZ also works closely with the private sector and promotes results-oriented interaction between the development and foreign trade sectors.

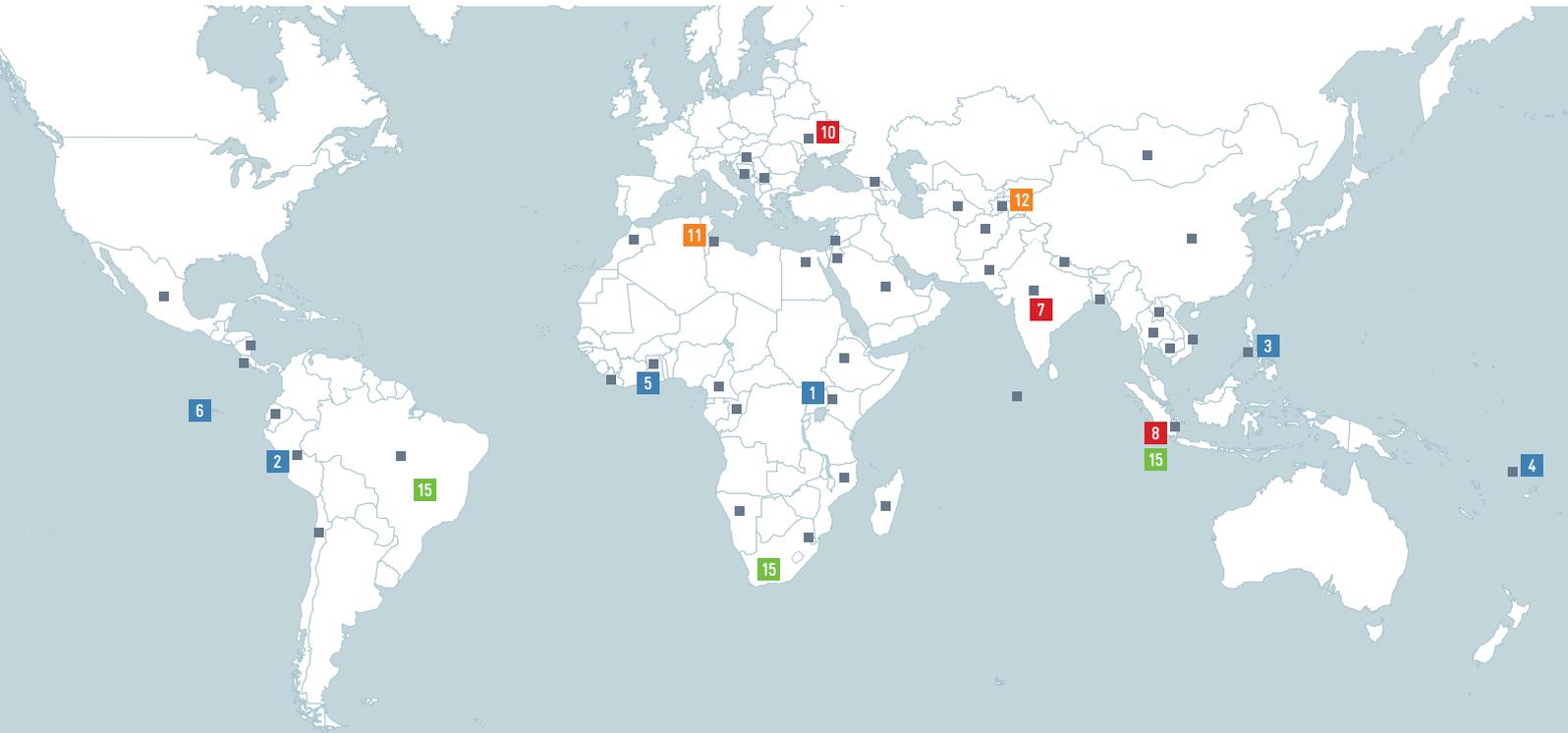
## 04 Climate Change Programmes for International Clients

GIZ delivers efficiently designed service packages for direct commissions from bilateral and multilateral organisations and partner countries through its International Services (IS) branch. By the start of 2011, 23 IS projects were explicitly or indirectly linked to climate change. Examples include the following projects:

- The MED-ENEC project in the MENA region, commissioned by the European Union, aims to promote energy efficiency measures and the use of renewable energy in the building sector in countries of the Mediterranean region.
- GIZ International Services established a Carbon Procurement Unit (CPU) in Guragon, India to support Indian and German parties in jointly implementing Clean Development Mechanism (CDM) projects and to commercialise the resulting Certified Emission Reductions (CERs).
- GIZ is supporting the management of Ethiopia's protected areas at a regional level. The project is commissioned by the Ethiopian Wildlife Conservation Authority (EWCA) and is financed by the Global Environment Facility through UNDP. GTZ IS is supporting financial sustainability plans and capacity building. Moreover, it is providing institutional support when planning and managing protected areas, and developing new management concepts and partnerships for protected areas.

A large number of climate change projects have received co-financing from bilateral and multilateral donors, enabling the scaling up of successful approaches. An example is a mangrove reforestation project to restore the ecological balance in wetlands in the Vietnamese province of Soc Trang, implemented on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ). Increasing the region's resilience to climate change and protecting its biodiversity, this flagship project has been replicated in the neighbouring province of Kien Giang with funding from AusAID. Climate change also plays a role in GIZ's development partnerships with the private sector. GIZ is currently implementing about 25 climate-relevant projects in public-private partnerships with private companies that are contributing to up to 55% of the project volume.

GIZ's successful work for diverse clients and the visible and measurable impacts of its projects in the field of climate change show GIZ's commitment to provide high-quality, individually tailored and sustainable solutions to the challenges of climate change around the world. ■



9 13 14 Global Projects

■ Further countries with GIZ climate change projects<sup>1</sup>

## Selected Climate Change Projects Around the World

### Adaptation

- 1 Uganda | Preserving Blue Gold – Climate Change Impacts in the Water Sector
- 2 Latin America and East Africa | Adaptation for Smallholders to Climate Change
- 3 Philippines | A Hot Spot in South-East Asia – Tackling Climate Change and Biodiversity in the Philippines
- 4 Pacific Islands<sup>2</sup> | Coping with Climate Change in the Pacific Island Region
- 5 Ghana | Sharing the Risk – Insurance Products for Climate Change Adaptation
- 6 Galapagos Islands | Biofuels for the Galapagos Islands – Generating Energy from Jatropha Oil

### Mitigation

- 7 India | Mitigating Greenhouse Gases through Carbon-Crediting
- 8 Indonesia | Fostering Forest Protection in Indonesia
- 9 Energising Development Worldwide | Access to Energy for 8 Million People
- 10 Ukraine | Energy-Efficient Buildings – Trendsetters in Ukraine

### Adaptation and Mitigation

- 11 Tunisia | Comprehensive Adaptation and Mitigation Support in Tunisia
- 12 Tajikistan | Improving Energy Efficiency for Households in the Pamir Mountains

### Tools and Methodological Approaches

- 13 Climate Proofing for Development | Mainstreaming Climate Change and Assessing Climate Risks
- 14 ci:grasp | An Internet Climate Information Platform
- 15 Climate Policy and Practice | Making Leadership Work for Climate Policy and Practice

<sup>1</sup> Additionally, there are various regional and global projects not shown on this map

<sup>2</sup> Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu

## ADAPTATION

## Uganda

## Preserving Blue Gold - Climate Change Impacts in the Water Sector

### The Challenge

Although Uganda has abundant water resources, climate change will exacerbate water stress in semi-arid areas of the country, especially the fragile ecosystem commonly known as the cattle corridor, which stretches from the south-western to the north-eastern part of the country. Climate change impacts will severely affect the rainwater-dependant human activity of farming, production and consumption. In the past, the prolonged droughts of 1999/2000 and 2004/2005 lowered water levels in lakes and rivers, affecting power generation and thus resulting in power rationing in the domestic and commercial sectors of the economy. A tremendous decline in manufacturing outputs ensued. In addition, water shortages led to a loss of animals, reduced milk and food production, food insecurity and increased commodity prices, thereby affecting livelihoods and economic activity. Due to climate change, the country also continues to experience increased variability in rainfall and disastrous floods. The resulting landslides disrupted livelihoods and led to the internal displacement of people, polluted water sources causing epidemic outbreaks and destroyed crops and infrastructure.

The Ugandan Government has asked GIZ to support its activities to combat the decrease in agricultural production and increased water scarcity.

### The Project

GIZ is supporting the Ugandan Ministry of Water and Environment by implementing the Reform of the Water and Sanitation Sector (RUWASS) project in Uganda on behalf of Germany's Federal Ministry for Economic Cooperation and Development (BMZ). GIZ is also assisting the Ugandan Ministry of Water and Environment in developing adaptation strategies and practical actions to adapt to climate change. In 2009, a climate component was integrated into water sector reform activities to address climate change impacts.

### GIZ Activities to Adapt to Climate Change

GIZ is supporting the Ministry of Water and Environment in providing the following services to make the water and sanitation sector more resilient to the impacts of climate change:

- Delivering concise and easy-to-use information from hydrological, meteorological and other climate-related data from both the Department of Meteorology and the Directorate for Water Resources Management. This data is meant to provide planners, technical staff and stakeholders in Uganda with better weather forecasts and climate scenarios for water resources management, agricultural production and other economic activities. GIZ is providing data collection, processing and management training for the Department of Meteorology and the Directorate for Water Resources Management. The project has also helped to equip the institutions with weather and hydro-stations, IT hardware and modelling software.
- GIZ is helping to develop flood management strategies and practical measures to deal with extreme weather events given the potential increases in floods and droughts. These measures include early warning systems, recommendations for access or evacuation routes, procuring drinking water treatment equipment for >



Water level indicator for flood monitoring

PHOTO GIZ

## ADAPTATION

## Uganda



PHOTO: GIZ

Maintenance of bridges and culverts

relief during flooding and generating flood hazard maps. In addition, GIZ is supporting the Directorate of Water Resources Management in developing and implementing a dam and reservoir safety and regulation strategy. This strategy provides a framework for stakeholder participation by user groups; it also defines technical guidelines for designing dams and reservoirs that account for critical water levels and climate change impacts.

- GIZ is helping authorities to develop and distribute publications and educational materials for different target groups. Materials about extreme weather events are informing communities about ways of adapting to future flooding. Furthermore, the project has developed materials to integrate the climate change issue into school curricula.

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## The Results

GIZ is helping Uganda to become more adaptive now while preparing for a resilient future by supporting the inclusion of climate change impacts in the national water policy. The project has so far improved the presentation of climate and weather information with the help of graphic illustrations and sector-specific bulletins. In the future, the project will contribute to better forecast quality and the dissemination of weather information.

A flood and reservoir safety and regulation strategy was developed. This strategy encourages more balanced water demand, use and availability, and improved stakeholder involvement. Further initiatives include designing multi-purpose and single-use dams, creating a priority list of key access and evacuation routes, emergency measures for safe drinking water supply and reviewing the design and safety of bridges, coverts and dams.

GIZ has published the Climate Change Actors' Landscape of Uganda, which has become one of the leading reference documents for coordinating and sharing information amongst climate change stakeholders in Uganda. This document has resulted in the formation of the Development Partners Thematic Working Group on Climate Change, which aims to coordinate donor activities in order to enhance synergies and reduce activity duplication. Students attending pilot schools have reported that their understanding of climate change related issues has improved by up to 71%.

## FURTHER INFORMATION

[www.ruwas.co.ug](http://www.ruwas.co.ug)  
[climate@giz.de](mailto:climate@giz.de)



## ADAPTATION

## Latin America and East Africa

## Adaptation for Smallholders to Climate Change

## The Challenge

In many countries, smallholder farmers in rural areas with limited resources are among the groups most vulnerable to climate change.

## The Project

The Adaptation for Smallholders to Climate Change (AdapCC) project was carried out by Cafédirect, the leading British Fairtrade Company for hot beverages, and GIZ in a development partnership lasting from 2007 to 2010. The project's objectives were both to strengthen coffee and tea farmers' capacity to cope with the risks and impacts of climate change and to improve their access to respective financial and technical support mechanisms.

This project marked one of the first times that a private company and a development cooperation agency had set up a partnership to work jointly with smallholder farmers to put climate change adaptation into practice at local level.

The project was financed by Cafédirect and the German Ministry for Economic Cooperation and Development (BMZ) and conducted in cooperation with the participating partner countries.

## The AdapCC Pilot Regions

The project was carried out in: Mexico, Nicaragua and Peru in Latin America and Kenya, Tanzania, Uganda in East Africa.

Climate change information was collected and analysed for all six countries at the start of the project. Variations in water availability, an increasing number of extreme weather events such as hurricanes, floods or prolonged droughts and rising average temperatures were identified as the most serious climate change impacts endangering coffee and tea production.

## An Example from the Field - Peru

The AdapCC project performed a risk and opportunity analysis between February and April 2008 with the pilot group CEPICAFE, a small-scale producer organisation that represents 90 cooperatives with 6,600 members. Located in Piura, in the north-west of Peru, these farmers mainly produce coffee, sugarcane, fruits and cocoa. A site-specific adaptation strategy was developed as a result of the participatory analysis that focused on two main components:



Tree nursery for coffee seedlings and shade trees



AdapCC project staff visiting a shade tree nursery

## Reforestation and Carbon Sequestration

Avoiding deforestation and reforesting degraded lands was one of the key actions needed to enhance the resilience of Piura's coffee-producing agro-ecosystems. With the support of Cafédirect and GIZ, CEPICAFE launched a carbon project in the higher water catchment area of the Choco region under the CarbonFix reforestation standard. This project led to adaptation effects in lower-level coffee producing regions. At the same time, the project generated >

## ADAPTATION

## Latin America and East Africa



PHOTO: GIZ

During a GIZ workshop, members of the cooperative CEPICAFE develop a poster on climate change and coffee, which they present on this picture

income through sales of carbon credits on the voluntary market. The project began by reforesting 285 hectares, an area that was extended throughout the project. As a first step, native tree nurseries were set up to produce approximately 50,000 tree seedlings. After 25 years, they are expected to capture 560.5 tonnes of CO<sub>2</sub> per hectare in an area of 285 hectares, corresponding to 159,742.5 tonnes of CO<sub>2</sub> captured in reforested areas. Ten per cent of the carbon credits sold are being directly invested in further adaptation measures in the coffee plots.

### Capacity Building and Implementation of Integrated Coffee Management Practices

Awareness raising and capacity building activities are crucial to respond to climate change effectively. GIZ and Cafédirect hence carried out a five-day train-the-trainer course attended by representatives of all three coffee cooperatives participating in the AdapCC project. This training course enabled CEPICAFE to raise awareness of climate change issues among 872 coffee producers and to support 36 member cooperatives in designing their own climate change action plans. Members were trained in soil conservation, irrigation, fertilisation, pest control and shade management. Additionally, 860 farmers set up living and dead barriers to reduce the risk of landslides and prevent erosion. Furthermore, CEPICAFE started installing 10 solar dryers to safeguard the coffee drying process under changing precipitation patterns.

These activities will secure the quality of CEPICAFE's green coffee exports in the long run.

*“AdapCC showed us how to adapt to climate change. This knowledge is not only benefiting me but also my children and my grand-children.” Santos Lizana Yajabuanca, CEPICAFE*

### FURTHER INFORMATION

[www.adapcc.org](http://www.adapcc.org)  
[climate@giz.de](mailto:climate@giz.de)

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## ADAPTATION

## Philippines

## A Hot Spot in South-East Asia – Tackling Climate Change and Biodiversity in the Philippines

### The Challenge

With more than 7,000 islands and 36,000 km of coastline, the Philippines is heavily affected by extreme events such as floods, typhoons and rising sea levels. Approximately 50 million people live along and near coastal areas. Most of the fishing grounds are today considered over-exploited and degraded. Increasing deforestation in the uplands has made communities living in flood and hazard-prone areas more vulnerable. The Philippines' marine and terrestrial biodiversity is beautiful, dense and endemic, making the country one of the world's biodiversity hotspots. Sadly, this rich biodiversity is highly endangered. Without adequate capacities and adaptive measures, both people and natural environments are left vulnerable and unable to cope with the adverse and escalating impacts of climate change.

The Philippine Government has established an Inter-Agency Committee on Climate Change (IACCC). The IACCC and its secretariat are responsible for the implementation of the United Nations Framework Convention on Climate Change (UNFCCC). They are taking the lead in formulating, developing and mainstreaming climate change adaptation strategies. These strategies should encompass good governance, ecosystem protection and greater knowledge of adaptation technologies in order to improve resilience against disasters and climate change impacts.

### The Project

The project, entitled Adaptation to Climate Change and Conservation of Biodiversity in the Philippines (ACCBio), is being implemented at the request of the Philippine Government and on behalf of Germany's Federal Environment Ministry (BMU). It aims to support the development and implementation of adaptation strategies that compensate for the effects of climate change and the loss of biodiversity in selected areas of the Philippines. The project provides an approach for ecosystem-based adaptation. It does so through the following components:

- Institutional support - GIZ is supporting the IACCC in technical and administrative matters, especially upgrading its Secretariat into a Climate Change Office.

- Policies and strategies - The Project has helped support the formulation of the Philippine Strategy on Climate Change Adaptation by fostering a multi-stakeholder and participatory collaboration process amongst key government agencies, academia and civil society organisations led by the Department of Environment and Natural Resources. This was a consensus-building process that lasted for 1.5 years. This Strategy is guiding the country's actions to cope with offsetting potential damage as well as take advantage of the associated opportunities with the changes in climate over the next twelve years. >



Adaptation through mangrove planting

## ADAPTATION

## Philippines



PHOTO: GIZ

Awareness raising for climate change adaptation

- Awareness-raising - The project is supporting relevant Philippine stakeholders in raising awareness of climate change and environmental issues. For instance, it is disseminating success stories and best practices via fact sheets and brochures during workshops, forums and drawing and photography competitions about Philippine biodiversity.

The project activities' target group is poor segments of the Philippine population, in particular, small-scale farmers or fishing communities. The project concept builds on involving existing institutions, which are supported according to their respective needs. An international consultant on climate policy, seconded to the Climate Change Of-

fice, provides technical advice and capacity development measures. The project is also fostering scientific cooperation with German and European research institutions and environmental organisations through study trips and networking.

### Showcasing Best Practices

Twenty-six small grant projects (SGP) with beneficiaries from different provinces focused on protecting terrestrial and coastal marine biodiversity. These micro-projects promoted capacity development activities; knowledge products; information, education and communication (IEC) activities; and infrastructure support to local government units (LGUs), government agencies, civil society organisations and networks, non-government organisations (NGOs) and academic institutions. One SGP recipient is the Museo Sang Bata sa Negros Foundation, Inc. The Foundation was able to conduct several marine biodiversity conservation and climate change education workshops for public elementary science teachers through the ACCBio Project. One hundred and eighty participants from different coastal municipalities in Negros Occidental attended the training workshops. The activity was able to raise awareness amongst teachers, students as well as ordinary residents about coastal marine protection, conservation and climate change issues. The workshops also enabled young people to carry out awareness campaigns, particularly by conducting museum tours for visitors.

### FURTHER INFORMATION

[accbio.denr.gov.ph](http://accbio.denr.gov.ph)

[climate@giz.de](mailto:climate@giz.de). > Coping with Climate Change in the Pacific Island Region

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## ADAPTATION

## Pacific Islands

## Coping with Climate Change in the Pacific Island Region

## The Challenge

The small size and low altitude of the Pacific island states make them particularly vulnerable to the impacts of climate change. The increasing frequency and intensity of storms and floods as well as rising sea levels are threatening the sustainable development and subsistence of this region, which depends heavily on its natural resources. The rise in temperature and lack of rainfall are having a direct impact on agriculture, human health and biodiversity. The knowledge and capacities to deal with these manifold challenges are limited.

## The Project

GIZ is working together with the Secretariat of the Pacific Community (SPC) and the Secretariat of the Regional Environment Programme (SPREP) through the regional programme Coping with Climate Change in the Pacific Islands Region (CCCPIR). The Programme is being carried out on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) for the period of January 2009 to December 2015. It aims at strengthening the capacities of 12 Pacific island countries (Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu) to cope better with the predicted impacts of climate change. The thematic scope covers land and marine-based natural resources, sustainable energy management, education and climate change, and tourism and climate change. SPC has also asked for GIZ's support to systematically integrate the latest climate change projections and best practices for adapting to climate change into its advisory services to member countries.

## Results

## Raising Awareness of Climate Change

More than 50 journalists and media representatives received training on climate issues and a variety of informational materials was produced and distributed. Awareness-raising activities in the project countries include specific climate change information weeks for 700 students in Tonga. In Vanuatu, radio talk shows with a penetration of 40% of the population are used to inform isolated communities about climate change.



Mangroves avoid land degradation and increase resilience to climate change in the Pacific Island region



Nursery at climate change pilot site in Vanuatu

## Adaptation Strategies, Agricultural and Forest Policies

The project is helping Tonga, Vanuatu and Fiji to develop national adaptation strategies and modify their policies as well as land use plans to reflect the projected impacts of climate change. Pilot activities at local level are demonstrating how those strategies can be put into practice. These include testing climate-ready crops that withstand saltwater spray and droughts, breeding resilient livestock and >

## ADAPTATION

## Pacific Islands



PHOTO: GIZ

Training on forestry and climate change in Vanuatu

afforestation to ensure that watersheds can fulfil their function despite harsher conditions.

Tonga's previous forestry policy did not address the impacts of climate change and was revised by the Department of Forest with support from GIZ and the Food and Agriculture Organization (FAO). Tonga is now amongst the first countries in the region to pursue a forestry policy that responds to climate change. The main points of this forest policy are:

- protecting mangrove forests
- preventing deforestation and forest degradation
- supporting reforestation and afforestation

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- conducting information campaigns (e.g. in schools) to explain the importance of forests.

The implementation of these principles and actions is demonstrated in the pilot projects and promoted in awareness raising campaigns.

## Reduced Deforestation in Fiji

More than 50% of Fiji's terrestrial area is forested, with most of the tropical forest fortunately still intact. The economic and ecological benefits of forests are enormous; they simultaneously help to reduce greenhouse gas emissions and adapt to climate change by preventing land degradation, thus creating a win-win situation. However, the loss of tropical forests is still continuing given that the demand for agricultural land and short-term income from logging are putting pressure on indigenous forests. The emergence of new market and financing mechanisms for reducing emissions from deforestation and forest degradation (REDD) are offering new opportunities for Fiji. These mechanisms provide sustainable land use alternatives and increase income. However, the knowledge and institutions needed to take part in these mechanisms pose a huge challenge. The Government of Fiji endorsed the REDD policy, which was developed jointly with representatives from the civil society, landowners and the private sector. The Department of Forestry and SPC have conducted time-bound forest cover assessments and carbon stock analyses of the Fijian forest ecosystem with support from GIZ. Accurate and verifiable carbon stock data is an important prerequisite for participation in an REDD mechanism and Fiji is a regional leader in this regard.

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## ADAPTATION

## Ghana

## Sharing the Risk - Insurance Products for Climate Change Adaptation

### The Challenge

Ghana's average daily temperature is expected to increase by three degrees Celsius by 2100 and rainfall is projected to decline by up to 27%. These climatic changes and the higher frequency and intensity of droughts and floods will significantly lower yields and raise financial risks affecting agriculture.

Climate-relevant agricultural insurance products will be introduced to the market within selected value chains using a financial systems approach. This step should help Ghana to cope with the socio-economic costs and risks of climate change.

### The Project

GIZ launched the Innovative Insurance Products for Adaptation to Climate Change (IIPACC) project in 2009. It followed a request by the Government of Ghana to support the country in tackling the socioeconomic costs and risks associated with climate change by developing and introducing agricultural insurance solutions in Ghana. Germany's Federal Environment Ministry (BMU) is funding the project, which is being jointly implemented by the National Insurance Commission of Ghana (NIC) and GIZ.

### Project Approach

The IIPACC project aims to allow the Ghanaian insurance sector to offer innovative and demand-oriented as well as economically sustainable agricultural insurance products. These products help to mitigate financial risks posed by extreme weather events and other forms of climate change. To this end, the project intends to facilitate the development and piloting of agricultural insurance products. The project is providing advice to insurance companies and facilitating links with international reinsurance companies.

The IIPACC project is investing in meteorological infrastructure and supporting national institutions through data collection and analysis workshops and on-the-job training to build the basis for a functioning climate insurance system. The Ghana Meteorological Agency, insurance companies, service providers and farmers can request training sessions on the importance of accurate, reliable and timely weather data for developing agricultural insurance products and data processing; other training workshops focus on using and



Weather station of the IIPACC project

maintaining weather stations. In addition, the project seeks to enhance the regulatory environment to allow international re-insurance companies to provide protection to the Ghanaian insurance market. This step is being taken in close collaboration with the National Insurance Commission and the Ghanaian insurance sector. The project is creating networks between national insurance companies, financial institutions, and other sales channels. It is also actively supporting the exchange of experiences on insurance products for climate change adaptation in sub-Saharan Africa.

### Impacts

Workshops were held with key stakeholders from the public and the private sectors to share information about agricultural insurance products and discuss inherent opportunities and challenges. Representatives from Ghanaian insurance companies, in particular, received training on how to develop agricultural insurance >

## ADAPTATION

## Ghana



Discussions and knowledge exchange with farmers



Farmers and the IIPACC team

PHOTOS: GIZ

products using real Ghanaian weather and crop yield data. Moreover, informational materials have been distributed through various channels, including a Financial Literacy Week, financial institutions and farmers' associations.

The project conducted a participatory study on regulative and climatic conditions for implementing agricultural insurance products in Ghana. The influence of the weather on harvests was examined for different crops, such as maize, banana, cocoa, and rubber, for the first time. Based on these results, a steering committee was set up to establish appropriate insurance products. This committee involved high-level representatives of the insurance sector and farmers, the Ministry of Finance and Economic Planning, the Ministry of Food and Agriculture, the World Bank, Ghana Re as well as NIC and GIZ. The project is meant to oversee the introduction of agricultural insurance products in Ghana.

As a result, the insurance sector has decided to set up the Centre of Excellence for Agricultural Insurance in Ghana. Through the institutional support and training provided by GIZ, the Centre has started to develop agricultural insurance products and marketing strategies for the insurance industry. Even outside Ghana, the project's work has been well received. A major re-insurance company has already expressed strong interest in supporting the nascent agriculture insurance market by offering the Ghanaian insurance sector re-insurance products as well as technical support. A first insurance product is being offered for the 2011 crop season.

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## ADAPTATION

## Galapagos Islands

## Biofuels for the Galapagos Islands – Generating Energy from Jatropha Oil

## The Challenge

The Galapagos Islands enjoy protected status as a national park; they are recognised by UNESCO as a biosphere reserve and form an ecosystem of global importance. On the inhabited islands, power is predominantly generated by diesel fuel brought by tanker from the mainland. The archipelago's ecosystems have repeatedly suffered serious damage from tanker accidents and spills of fossil fuel. The Ecuadorian Government has set itself the target of using 100% renewable energy sources for power generation on the Galapagos Islands, by 2020. In this context, it is particularly important to substitute fossil fuels with pure plant oil grown under environmentally and socially acceptable conditions. A suitable candidate for this is oil from Ecuador's native *Jatropha Curcas* (physic nut), which is used as hedges in one of the country's poor regions, the coastal province of Manabi.

## The Project

GIZ provides technical and scientific advice to the Ecuadorian Ministry of Electricity and Renewable Energy and other local partners, in order to promote the use of *Jatropha Curcas*, increase the yields and

support its processing into PPO. It is conducting the project on behalf of the German Federal Environment Ministry (BMU), and as part of the international climate initiative.

*Jatropha Curcas* is a shrub endemic to Ecuador, grown in one of the poorest regions of the country, the coastal province Manabi. Traditionally it is cultivated as hedges to fence off pasture land. The project will therefore also create additional income sources for the rural population. In addition, the project is helping to convert generators newly purchased for the Galapagos to run on pure plant oil. Measures are also being planned to build the technical capacity of local actors and promote energy efficiency.

## GIZ Activities on Climate Change Adaptation

By replacing fossil fuels with biofuel produced in a socially and environmentally acceptable manner, the project contributes directly to climate change mitigation. While establishing the value chain for *Jatropha* oil in the Galapagos, it focuses on three specific components:

- Additional income generation for small-scale farmers (especially women) by raising yields, and increasing the production and marketing of *Jatropha* oil
- Modification of new generators to use *Jatropha* oil (technical advice, investment and supervision)
- Training, education and awareness raising for the local stakeholders, both on the mainland and on Galapagos Islands, about the climate neutral production and use of *Jatropha*.

The project also contributes to technology transfer with respect to the use of PPO in combustion engines, and raises awareness of German climate mitigation policies in such an internationally significant context as the Galapagos Islands.

## The Results

A significant amount of the Galapagos Islands' thermal electricity generation is being switched to the new generators that are adapted to run on pure plant oil sustainably produced on the mainland. This will contribute to energy security and environmental protection on the islands. >



PHOTO: GIZ

Capacity building with agronomists at the agricultural research station in Manabi

## ADAPTATION

## Galapagos Islands



PHOTO: GIZ

Generating energy from Jatropha CI

Economically-viable production of jatropha pure plant oil by small-scale farmers has become established in the coastal mainland areas. The oil complies with the quality requirements of the new generators and meets criteria for social and ecological sustainability. In this way, GIZ is helping to diversify and adapt agricultural production to climate change, and to secure vulnerable livelihoods.

Integrating local people brings economic and social development, while the use of ecologically and socially acceptable jatropha oil for energy generation is an important step in preserving the world's natural heritage of the Galapagos Islands.

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## MITIGATION

## India

## Mitigating Greenhouse Gases through Carbon-Crediting

### The Challenge

The Kyoto Protocol provides flexible mechanisms for industrialised countries to fulfil their commitments to reduce greenhouse gas (GHG) emissions. Under the Clean Development Mechanism (CDM), public and private institutions from industrialised countries are promoting emission reduction projects in developing countries, where often inefficient and outdated processes prevail. Hence, the potential for reducing GHGs is much greater and can be achieved at a lower cost than improving advanced technologies in industrialised countries. For every tonne of CO<sub>2</sub> equivalent that is reduced as a result of a CDM project, a Certified Emission Reduction (CER) unit is issued and can be used by industrialised countries to fulfil their emission reduction commitments.

India is one of the countries with most CDM projects worldwide. Nonetheless, the sound framework conditions that energise the creation of the carbon trading market still need to be optimised. In detail, this step requires the support of partners during the approval process for CDM projects and securing carbon investments.

### The Carbon Procurement Unit in India

GIZ International Services established a Carbon Procurement Unit (CPU) in India in 2007 to serve as an intermediary for CDM-based carbon trading between India and Germany.

Within the scope of the project, which runs from 2007 to 2013, the CPU is supporting Indian and German partners in jointly implementing CDM projects. The participation of buyers from Germany is enabling the CPU to offer reliable and beneficial carbon financing options that are customised to the needs of project owners.

The CPU is identifying ongoing or planned projects that reduce greenhouse gas emissions and meet CDM criteria. There is a focus on measures relating to energy efficiency and the use of renewable energy.

### Project Results

Thanks to all of the projects initiated over the years, the CPU has contributed to the fact that today about 35% of CDM-generated ›



Municipal solid waste composting in the industrial area of New Delhi

## MITIGATION

## India

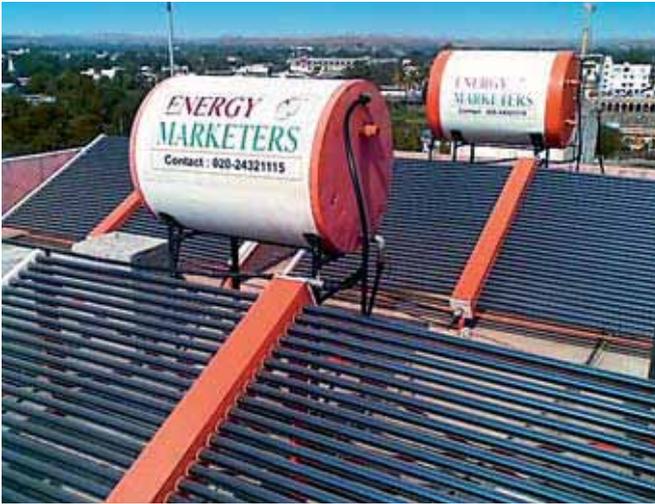


PHOTO: GIZ

Solar water heaters in Pune, state of Maharashtra

emissions reductions come from India. Furthermore, the CPU has developed individual CDM methodologies. The CPU is also active in CER trading and is one of the leading market players in India. Since its creation, the CPU has secured and managed around 20 CER procurement contracts between Indian suppliers and German and Dutch industries, equivalent to the value of about 9 million tonnes of CO<sub>2</sub>. The Indian CPU is currently supporting 36 projects of different size. Amongst them is the world's biggest renewable programme for generating energy from biogas and biomass power plants.

The CPU entered the compliance market by assisting a German power company that planned to use approximately 90 million CERs by 2012 in order to fulfil its own obligations under the European Union Emissions Trading Scheme.

In addition to the compliance market, the CPU is also active in developing carbon mitigation projects, which involves accelerating foreign direct investment in clean energy projects. In this context it is focusing on carbon financing and low-carbon investments.

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## MITIGATION

## Indonesia

## Fostering Forest Protection in Indonesia

**The Challenge**

The Indonesian Government has set an annual economic growth target of seven percent. Much of this economic growth will come from palm oil, pulp and paper production, and the expansion of mining concessions. As a result, Indonesia ranks as the third biggest emitter of greenhouse gases worldwide, with 85% of emissions caused by progressive forest destruction. However, Indonesia has also committed to reduce greenhouse gas emissions by 26% by 2020 compared to a 'business as usual' scenario. The challenge is therefore how to sustain economic growth and make it work for poor people in rural areas while also limiting planned natural forest conversion and preventing unplanned deforestation and forest degradation.

The Indonesian Ministry of Forestry has set targets for institutional and policy reform in its Strategic Action Plan 2010-2014. These objectives aim to create the necessary framework for sustainable forest management, forest protection and climate change mitigation.

**The Programme**

GIZ's Forests and Climate Change programme (FORCLIME) is supporting the Indonesian Ministry of Forestry in delivering forestry sector reforms as outlined in the current Strategic Action Plan. The

Programme is being carried out on behalf of the German Ministry for Economic Cooperation and Development (BMZ) and addresses some of the core problems facing the Indonesian forestry sector: progressive forest degradation, weak governance structures, tenure insecurity and ensuing land use conflicts. As such, the Programme is following a three-pronged multi-level approach, represented in three programme components: 1. policy advice, strategy development and institution building; 2. implementation of strategic plans for sustainable forest management; 3. promotion of nature conservation and sustainable development. The Programme is providing its advisory services at provincial and national level. Moreover it is supporting activities for reducing emissions from deforestation and forest degradation (REDD) in three pilot districts on the island of Kalimantan, namely Kapuas Hulu, Malinau and Berau. The ultimate goal of the Programme is to cut emissions from the forestry sector and to improve living conditions for the rural population.

**Achievements To Date**

The forest administration reform is well on its way and constitutes one of the highest priorities in the Ministry of Forestry's medium-term Strategic Action Plan. The reform will lead to the develop- >



In the International Year of Biodiversity 2010, the programme undertook awareness raising activities for students.

PHOTO: GIZ

## MITIGATION

## Indonesia



PHOTO: GIZ

Villagers on the edge of the forest depend on forest resources for their livelihoods

ment of forest management units at the field level that are responsible for sustainably managing all forest areas, as well as facilitating community use rights.

The Programme has supported the preparation of REDD readiness strategies and action plans for climate change mitigation in the forestry sector in the pilot districts as well as a climate change mitigation programme for East Kalimantan. In that context, the Programme has provided comprehensive training and has fostered the development of an information system on REDD+ safeguards as part of Indonesia's follow-up to the COP-16 decisions.

At the district level, the Programme has conducted socioeconomic baseline studies, historical land cover change analyses and surveys of current land use and licences. Communities have begun participatory resource and boundary mapping, and are preparing the necessary documents to request that the community be allowed to manage the forest areas.

Women's needs in respect of the use of forest resources have been analysed and integrated into FORCLIME's activities.

The Programme is working with the private sector to develop strategies about how to use sustainable forest management for climate change mitigation. It is supporting the Heart of Borneo Initiative in implementing strategies for the development of protected areas, collaborative management of national parks and buffer zones, and local community development.

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## MITIGATION

# Energising Development Worldwide

## Access to Energy for 8 Million People

### The Challenge

Energy supply is a key factor for sustainable development and poverty reduction. Economic growth is limited if energy is not broadly available.

Moreover, around 2.5 billion people worldwide still rely on the traditional use of biomass energy for cooking, baking, and heating. However, up to 90% of biomass energy is not used efficiently with traditional methods. At the same time, people are exposed to the risk of indoor air pollution through open fires, which accounts for 1.5 million deaths every year.

### The Project

Energising Development (EnDev) combines Dutch and German energy expertise. As a partnership between the Dutch and German Governments, EnDev is being implemented by GIZ in cooperation with the Dutch agency for sustainability and innovation, NL Agency. The aim of the project is to provide 8 million people in developing countries around the world with sustainable access to modern energy services by 2015. The target groups are poor households, small enterprises and social institutions in rural areas. The project does so by

either connecting households to a central grid or a mini grid or by supplying improved stoves or solar home systems (SHS).

### EnDev Project Results: Boosting Development

EnDev worked in 21 different countries during the first phase (2005–2009) and has provided around 5 million people with access to modern energy services. This by far exceeded the original target of reaching 3.1 million people by 2009. This impressive number was achieved at costs of around EUR 9 per person.

At a household level, EnDev supported the provision of energy-efficient cooking stoves to more than 870,000 households in 15 different countries. The use of these improved cooking stoves reduces individual households' fuel consumption by 30-50%, with most assessments showing energy savings of around 40%. Users save time spent collecting firewood and money for buying fuel. The stoves emit very little smoke and have raised indoor air quality. Furthermore, children in these households have been relieved of some of their time-consuming housework such as cooking and fuel collection. Consequently, children have more time to attend school and study ›



Typical way of transporting solar panels to rural customers in Bangladesh

PHOTO GIZ

## MITIGATION

# Energising Development Worldwide



PHOTO: GIZ

Grid densification in rural Bolivia

after school. In addition, more than 5,200 stoves have been supplied to schools and other social institutions.

The GIZ project has also helped to improve living standards through electrification. The project has significantly boosted economic growth by providing small businesses with power. The provision of electricity to more than 1,000 schools has enabled teachers to use computers, televisions and audio recorders, thus enhancing the quality of the education system. EnDev has also provided power to around 245 health centres using grid connections or solar energy systems. This step has improved medical treatment, as it provides cooling systems for medicine and vaccines, appropriate lighting for operations and treatment, and better availability of hot water to sterilise instruments.

## An example from the Field - Bolivia

In Bolivia, EnDev is working along four main fields of action to enable access to modern energy to the population.

Firstly, the project is providing energy for illumination through grid densification and mobile solar appliances such as lamps. Secondly, it is enhancing energy supply for cooking by new biomass stoves for households and institutions and installing natural gas appliances for schools. Thirdly, it is strengthening energy provision in schools and health centres through photovoltaic systems, solar water heating and by installing natural gas appliances. Fourthly, it is providing energy for productive uses through crop transformation, micro irrigation and biogas. The project assisted more than 570,000 beneficiaries in rural poor communities from 2006 to 2010.

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## MITIGATION

## Ukraine

## Energy-Efficient Buildings - Trendsetters in Ukraine

**The Challenge**

Energy intensity - the energy required per unit of gross domestic product - is 16 times higher in Ukraine than in Germany. The inefficient use of energy resources is contributing to considerably high greenhouse gas (GHG) emissions as well as further environmental degradation. The building sector accounts for a significant proportion of Ukraine's total energy consumption with a share of about 30%. This is true not only of existing buildings, but also of new buildings. In many cases, construction does not follow basic quality standards, such as efficient insulation, well-insulated windows and efficient heating, cooling and ventilation systems.

The building sector thus has huge potential to deliver quick, deep and cost-effective GHG reductions in Ukraine. Improved technical and managerial knowledge can provide positive examples and serve as benchmarks for energy consumption and related costs for the property market.

**The Project**

GIZ's Energy-Efficient Pilot Project is developing and promoting the implementation of energy-efficient building concepts in Ukraine at the request of the Government of Ukraine. One of the main objec-

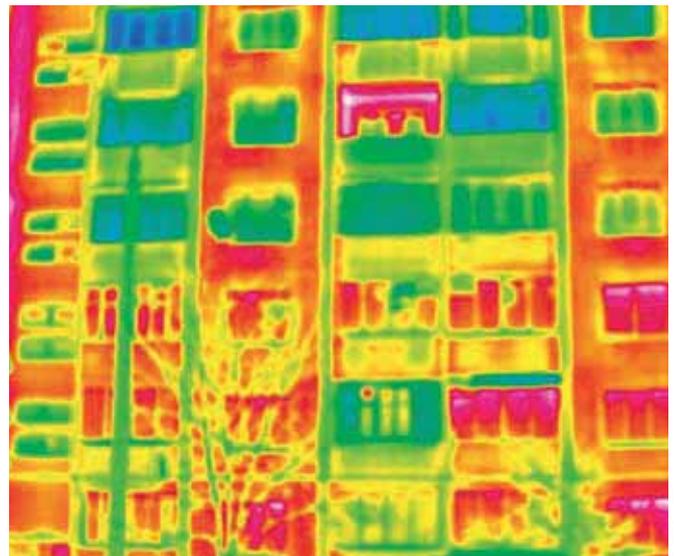
tives of the Ukrainian-German partnership is to support a newly constructed building complex by introducing energy efficiency concepts and measures. This complex can then serve as an example of energy-efficient construction. The project aims to show that higher investment costs for energy-saving measures at first lead to much lower energy and operating costs for the building during its entire lifecycle. The project is being financed by the German Federal Environment Ministry's (BMU) International Climate Initiative for a duration of four years, from 2009 to 2012.

A multidisciplinary team in Kiev, comprising local and international experts in the fields of architecture, energy design, construction as well as climate protection and mitigation, is responsible for implementing the project.

The pilot project in Kiev is supporting a new residential and office complex that has a total area of approximately 158,000 m<sup>2</sup> and involves an overall investment of EUR 65 million. The building will make energy consumption savings of about 30% compared to similar buildings in Ukraine thanks to a thermal insulation composite system, double-glazed windows, reduced heat bridges and improved air tightness. To achieve energy savings of approximately 50% the complex also features: >



Improving the energy efficiency of buildings in the Ukraine



Picture taken with an infrared camera

PHOTOS: GIZ

## MITIGATION

## Ukraine



- Improved windows
- An external shading system
- Ventilation with heat recovery
- Solar thermal collectors
- Heat pumps.

There are plans to replicate this concept.

In addition, the project is organising training seminars and workshops for craftsmen, engineers, architects and others involved in implementing the energy efficiency measures. This issue will be integrated into curricula for architects and engineers in partnership with the Kyiv National University of Construction and Architecture. The project is working together with the Construction Academy to support training for construction workers.

The project is forging links with the private sector regarding technology cooperation and investment as well as financing arrangements with local banks to foster replicability of this pilot project. The replication of this project is supported by PR activities, exhibitions and dialogue with the ministries in charge of the building sector and the environment as well as with universities and industrial associations.

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## ADAPTATION AND MITIGATION

## Tunisia

## Comprehensive Adaptation and Mitigation Support in Tunisia

## The Challenge

Climate change has become evident in Tunisia in recent decades. The country is currently experiencing extreme summer temperatures, sharp decreases in precipitation and an increase in the frequency and intensity of both droughts and floods. Average rainfall levels are predicted to decrease by up to 30% by 2050 in some parts of the country. The mean annual temperature is expected to climb by between 1.6 °C and 2.7 °C over the same time period. Climate change will thus severely threaten the availability of water in the region, as well as human developments and ecosystems. Core economic sectors such as agriculture and tourism will suffer heavily from these impacts. Tunisia has ratified both the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. However, the country has limited expertise and institutional and technical capacities to take the action needed and make use of the opportunities offered by the Kyoto Protocol.

## The Project

GIZ launched the project Supporting the Implementation of the UNFCCC in Tunisia in 2006 at the request of the Tunisian Government and on behalf of the German Ministry for Economic Development and Cooperation (BMZ).

The Project is helping to integrate adaptation and mitigation actions into Tunisia's key economic sector strategies and development plans. It is providing decision-makers as well as management and technical professionals at the local, regional and national levels with advice related to the implementation of the UNFCCC.

The project strategy is based on three key components and also delivers decentralised support services:

- **Clean Development Mechanism (CDM)**

The CDM is promoting the reduction of greenhouse gas emissions through projects implemented by industrialised countries in developing nations. A Certified Emission reduction (CER) unit is issued for every tonne of CO<sub>2</sub> equivalent that is reduced as a result of a CDM project. Industrialised countries can use these units to fulfil their emission reduction commitments. The GIZ project has developed practical suggestions on how to improve the Tunisian regulatory and legislative framework for implementing CDM activities. It also carries out an extensive support programme, including training sessions and individual advice, for CDM project owners, and practi-



PHOTO: GIZ/MICHAEL GAU

A wind turbine powers a water well for nomadic tribes

cally designs CDM projects for the energy, waste and transport sector.

Tunisia has so far sold 109,200 CERs each year. This figure might possibly increase to 380,000 tonnes/year of CO<sub>2</sub> equivalent, corresponding to the amount of CO<sub>2</sub> emitted by around 3,800 refrigerators each year. Tunisian partners are better informed about the international carbon market and able to position themselves adequately thanks to the project and in cooperation with the regional CDM-JI initiative. Partner institutions have reported having delivered a significant growth in competence, allowing them to unlock the potential of carbon markets. As a result, Tunisia is perceived as an increasingly attractive and competent partner in the international CDM market, also for new mitigation instruments beyond the CDM, the so called post-Kyoto instruments.

- **Climate Change Vulnerability and Adaptation**

In this component, the project has provided tailor-made support to deal with the challenges of climate change to ministries, government and non-government organisations in the agriculture, water resources management, health and tourism sectors. The Ministry of Agriculture and Environment has published a portfolio of 50 tangible adaptation projects and programmes with the help of the project. >

## ADAPTATION AND MITIGATION

## Tunisia



PHOTO: GIZ

Discussing adaptation measures in the Oasis of Hazoua, Tunisia

The Ministry of Health has received assistance to develop a training programme about climate change and health and to compile a strategy and a plan of action to tackle the effects of climate change on human health. Better water management is one of the key challenges in Tunisia and has been a special focus of the project's activities. Participatory management systems for the use of water resources, including the monitoring of ground water, are being developed in areas that are particularly poor and vulnerable to climate change. In addition, the project is helping the city of Kebili to utilise wastewater.

#### ■ Synergies between the three Rio Conventions

The component's objective is to promote synergies between the three conventions, thereby ensuring more sustainable outcomes. Assisted by the project, local stakeholders are implementing pilot measures that take issues of climate change into account, while promoting biodiversity conservation and combating desertification.

#### Voices from the Health Ministry:

Nadhif Mabrouk, Director of Hygiene with the Ministry of Health, highlights the participatory approach: 'We are learning to work sustainably and with a universal vision. All key stakeholders in Tunisia now know that the climate problem cannot be solved within the agricultural sector alone, but demands a coordinated approach involving all sectors. This growing understanding has made work much easier. Raising awareness is the most important element. We receive a very large number of questions from our colleagues in the interior of the country.'

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## ADAPTATION AND MITIGATION

## Tajikistan

## Improving Energy Efficiency for Households in the Pamir Mountains

### The Challenge

The Pamir Mountains in eastern Tajikistan are one of the most extreme environments with only 120 mm of rainfall and temperatures ranging between  $-40^{\circ}\text{C}$  and  $40^{\circ}\text{C}$ . Surface water is abundant from the glaciers but downhill water flows are often unused. Climate change has direct impact on the population's living conditions. After the collapse of the Soviet Union, the state stopped supplying coal and gas. As a result the population started to heat their homes with wood, manure and a very slow-growing shrub called Teresken, most often in an unsustainable way. Disastrous erosion phenomena soon occurred and many of the woodlands disappeared almost entirely.

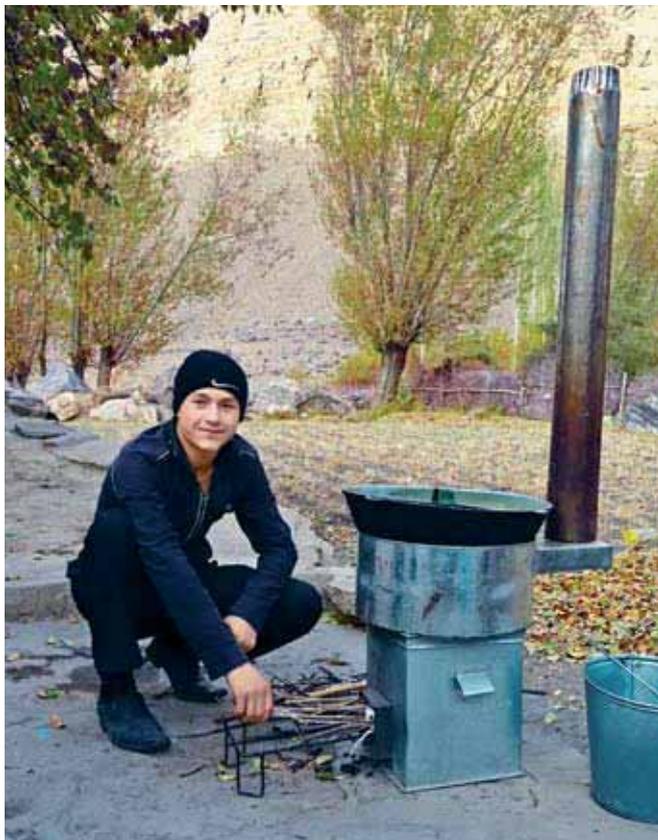


PHOTO: ANJA ROHDE

Demonstration of the energy efficient attachment to the summer-stove "Tepaz" for bread baking

### GIZ's work

GIZ is supporting the Land Use Committee and the Forestry Agency of the Gorno-Badakhshan region in implementing the sustainable management of natural resources. Furthermore the project is enabling local households to adapt to climate change.

The project is being carried out on behalf of Germany's Federal Ministry for Economic Cooperation and Development. Its main objective is to alleviate the pressure on natural resources and to improve living conditions for the local population.

### GIZ Activities Towards Sustainable Resource Management and Climate Change Adaptation

GIZ's intervention consists of an integrated approach focusing on two main issues in order to bring about the sustainable management of natural resources and thus adapt to climate change:

#### Joint Forestry Management

The local forest agency is leasing woodlands to local residents who cultivate them on the base of jointly developed management plans. GIZ and CIM staff are providing the tenants with technical and organisational consulting services and advising the local forest agency.

#### Energy-Efficient Technologies

The main goal of promoting energy-efficient technologies at a household level is to reduce the consumption of biomass as fuel via thermal insulation and to improve cooking, heating and pump technologies. Local conditions and customs are being taken into consideration when developing and marketing new technologies. GIZ staff worked together with local carpenters to develop double-glazed windows, insulated doors and improved heating and cooking stoves. The project also developed training modules for carpenters and metal workers. Support from a local micro finance institution, which offered green credits for thermal insulation, facilitated the dissemination of products developed in recent years. Another direct marketing approach has recently been implemented. People are trained to work as disseminators who advertise energy-efficient technologies and instruct customers on correct use, receiving a percentage for every product sold. >

## ADAPTATION AND MITIGATION

# Tajikistan



## Results

Villagers start to feel responsible for their forest plot when implementing joint forestry management. They share the income generated by sustainable management with the forest agency so that both sides gain profits. Erosion and the risk of landslides are reduced, and firewood and timber is produced locally. Forest land has been rehabilitated and increased.

Introducing energy-efficient technologies has yielded fuel savings of up to 60% at a household level. The combination of measures to raise awareness amongst the local population, allocate micro loans and train craftsmen paved the way for implementation. At the same time, the local population's living conditions have improved by creating additional sources of incomes and easing the provision of fuel.

The introduction of simple water-powered pumps has allowed farmers to cultivate formerly fallow lands. Vulnerable communities have gained more income and became more resilient to droughts thanks to the support of the GIZ project.

## FURTHER INFORMATION

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# Climate Proofing for Development

## Mainstreaming Climate Change and Assessing Climate Risks

### The Challenge

Decisions made today will determine the extent of future vulnerability to climate change. Development planners are challenged to take into account the effects of climate change when formulating policies, strategies, projects and local government plans in fields such as agriculture, forestry as well as urban and infrastructure development. While the development community has clearly recognised the need for action in this regard, there is still much debate about how climate change issues should be integrated into development initiatives in practice.

### The approach

GTZ has been developing an approach called Climate Proofing for Development (CP4Dev) since 2007. This approach aims to integrate climate change aspects into development programmes and to identify adaptation options by systematically assessing climate risks. This step is achieved by analysing and modifying planning documents, strategies and policy papers, with necessary responses being identified and prioritised. The goal of all modifications is more climate-robust development.

CP4Dev follows a specific methodology:

First, data and information on climate trends are collected and systematised. 'Exposure units' are defined in cooperation with stakeholders and based on this information. These can be groups within society, sectors or types of activities that are especially exposed or vulnerable to climate change.

Second, meetings and workshops are held that focus on identifying biophysical and socioeconomic impacts of climate change on these exposure units, and their relevance from a planning point of view.

Third, experts and stakeholders develop possible measures considering the information gathered and the analysis undertaken in the previous steps. Support in this step focuses on providing an overview of typical adaptation options for specific sectors and tools for setting priorities.

### An example from the Field – Mali

The Malian economy is essentially based on the use of natural resources. Population growth and climatic constraints are raising the pressure on livelihoods based on those resources.



PHOTO: GIZ

Climate Proofing for Development was applied for the Phong Nha - Ke Bang National Park Region

The Government of Mali has decided to take account of climate change at various levels of development planning. GIZ started to support Mali with the integration of climate change issues into planning at the project level on behalf of the German Federal Environment Ministry (BMU) and the German Federal Ministry for Economic Cooperation and Development (BMZ). Support followed at the local, sectoral and national levels. Planning and related support activities are closely interlinked at various levels.

### ... at Project Level

A series of training sessions on the CP4Dev approach was conducted with Malian stakeholders. Two projects financed by multilateral institutions as part of the sustainable land management (SLM) sectoral investment framework have been subjected to climate proofing on a pilot basis. One of these, the SLM project in Kayes Province, is being financed by various donors and seeks to encourage the local population to conserve natural resources in order to halt advancing desertification. CP4Dev made it possible to identify several options for >

## TOOLS AND METHODOLOGICAL APPROACHES

# Climate Proofing for Development



PHOTO: GIZ

Workshop for Climate Proofing for Development in the Philippines with government officials

action, such as diversifying agriculture through intercropping and the use of adapted varieties, as well as promoting efficient water use by collecting and storing rainwater.

## ... at National and Sectoral Level

Following CP4Dev's success when applied in SLM projects, the Malian Government also recommended its use at the national and sectoral levels as part of strategic environmental assessments (SEAs) for all major policy processes and interventions. A pilot SEA using CP4Dev was carried out for the National Programme for Small-scale Irrigation.

## ... at Local Level

In addition, a pilot project using the CP4Dev approach is being carried out in four municipalities, helping to adapt municipal planning to the impacts of climate change.

## Results achieved and Outlook

Climate Proofing for Development has proven its flexibility. Its methodology was successfully adapted to the logic, terminology and stages of Malian planning processes. Adapting the climate proofing approach has been characterised by a high level of ownership on the part of the Malian partners. This ownership is reflected in several ways: the Malian Ministry of Environment has developed a dissemination strategy for the CP4Dev approach on its own initiative. The Ministry has set up a working group whose task it is to improve the process of applying CP4Dev, particularly as regards quality control and the dissemination of experiences. Other ministries and NGOs show great interest in climate change mainstreaming and in applying CP4Dev in their operations.

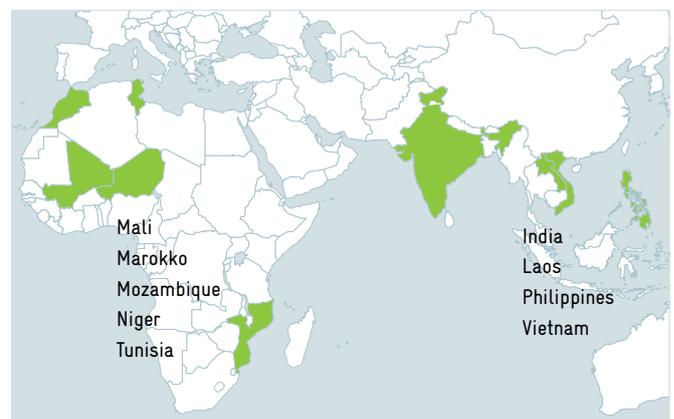
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## ci:grasp – An Internet Climate Information Platform

### The Challenge

Decision-makers and planners in countries affected by climate change need reliable information to be able to react effectively to the new situation. This includes information on climate change scenarios (“What will the climate be like 10 or 50 years from now?”), the likely effects of climate change at regional and local levels (“What will be the impact of the changed climate on society and resources?”), and good-practice examples for activities to adapt to climate change (“How can we avoid or deal with this impact?”).

Decision-makers and planners in many countries have only limited or poor access to information. Even if information is available, it is often not well structured. Therefore, the central question of “How can we react appropriately to adapt to climate change?” often remains unanswered.

### The Project

**ci:grasp**, the Climate Impacts: Global and Regional Adaptation Support Platform, is a web-based climate information service that was jointly established by GIZ and the Potsdam Institute for Climate Impact Research (PIK). ci:grasp was commissioned by the German Federal Environment Ministry (BMU). The internet platform structures information for planners and decision-makers into three main categories:

- 1. Climate change stimuli:** information about changes in climate stressors: temperature, precipitation, drought, and sea level rise.
- 2. Climate impacts:** the effects of climate change on sectors and geographical areas. Standardised impact analyses allow users to compare sector-specific impacts worldwide.
- 3. Adaptation measures:** a database of peer-reviewed, real world adaptation projects that address specific climate impacts. Users can browse available information and share their own experiences with user-friendly online templates.

Climate impact chains are the links between these three categories. They are cause-and-effect chains that connect climate change stimuli with their potential impacts and appropriate adaptation measures. Graphical representations of climate impact chains help users to navigate through the platform.



A Googlemaps interface locates adaptation projects around the world

### Added value for the user

**ci:grasp** helps to prioritise adaptation needs and plan and implement appropriate adaptation measures. The platform is targeting decision-makers' technical support structures in ministries, government and research agencies. The platform is also meant for use by sector specialists, development agencies, and NGOs. By navigating along the climate impact chains, users can identify the potential impacts of individual climate stressors, which are presented as interactive maps. Users also learn about adaptation measures already being used. They can compare adaptation approaches used in other parts of the world and evaluate them for their suitability in their own contexts. In addition, the platform enables users to compare today's climate with projected future climates that are modelled according to different CO<sub>2</sub> emission scenarios.

### Project partners

The focus has been on nine key partner countries during the initial phase of system development: Brazil, Chile, China, India, Indonesia, Peru, the Philippines, South Africa and Tunisia. The project is being jointly implemented by the national scientific centres of excellence on climate change research in the partner countries, by GIZ, and the Potsdam Institute for Climate Impact Research (PIK).

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# Climate Policy and Practice

## Making Leadership Work for Climate Policy and Practice

### The Climate Leadership Programme (CLP)

Climate change will have a fundamental impact on the living conditions of billions of people and eventually change the way we go about our lives. However, the institutional environment in which many organisations are embedded exerts strong pressure to follow often climate-unfriendly business-as-usual development pathways. Broad coalitions that reflect the collective action of multiple parties are needed to bring about profound changes, such as the transition to a low-carbon economy. In today's complex environment, leaders from government, business and civil society have to collaborate across traditional boundaries with an understanding of leadership that involves both socially and environmentally responsible actions.

The CLP is a new and innovative capacity building programme carried out on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ). The programme's objective is to support high-ranking decision-makers from key institutions in facing the unprecedented complexity of challenges in the fields of climate protection and adaptation to climate change. It addresses and brings together influential decision-makers from Indonesia, South

Africa and Brazil, helping them to develop together the capabilities needed to promote innovation and organisational transformation in the context of climate change. The CLP also assists them in shaping responsible climate policy in their organisations while considering the interplay between climate and development issues.

### Climate Leadership Potential

The CLP applies a methodology inspired by Dr C. Otto Scharmer from the Massachusetts Institute of Technology (MIT) in order to develop such capabilities. This management and leadership concept is known as Theory U and lies at the heart of the CLP. This idea combines personal and collective leadership development with innovative leadership and change management tools and new learning methodologies. It strives to enable competent social leaders to develop answers to new and complex problems and implement these in their organisations. These organisations then in turn create innovative, sustainable and inclusive solutions, shifting from mere debate to actively co-creating new solutions. >



The CLP combines personal leadership development with the ever more pressing issue of climate change.

PHOTO: GIZ

## TOOLS AND METHODOLOGICAL APPROACHES

# Climate Policy and Practice



PHOTO GIZ

The CLP combines personal leadership development with the ever more pressing issue of climate change.

## CLP in a nutshell

The CLP consists of three consecutive programme cycles which began in 2010. Two countries participate in each cycle, which focuses on one particular climate change debate topic important to both countries. Participants involved in each cycle commit to attend 20 days of organised programme activities in an 11-month period accompanied by self-organised inter-sectoral group activities.

The CLP combines expert dialogues and discussion forums with reflection methods, perception techniques, peer coaching, shadowing journeys, stakeholder dialogues, an exposure programme and the

development of prototypes. The programme is thus pairing innovative leadership approaches with the latest climate change findings from science and technology. It provides participants with a core skill set that they can use to foster profound innovation and change.

## Cities and Climate Change

The first programme cycle in 2010/2011 has focused on aspects of climate change in cities. It targeted top South African and Indonesian executives from the public, private and civic sector who were willing to make a difference in their cities. A selected group of leaders have been offered the opportunity to co-create small but meaningful models that, if scaled up, would have a significant impact on the key underlying issues that determine climate change. Participants will develop an in-depth understanding of the relevance of climate change for their cities, sectors and institutions. Moreover, participants will have the chance to explore different aspects of climate change from the perspective of its diverse stakeholders. They will raise their awareness and enhance leadership skills and build lasting networks across sectors and continents. In the final months of the programme cycle, the participants have been developing prototypes for addressing different aspects of climate change relevant to their professional context. Prototypes are small initiatives with error-tolerant design allowing for quick redesign and implementation in order to optimise the learning-by-doing effect.

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