

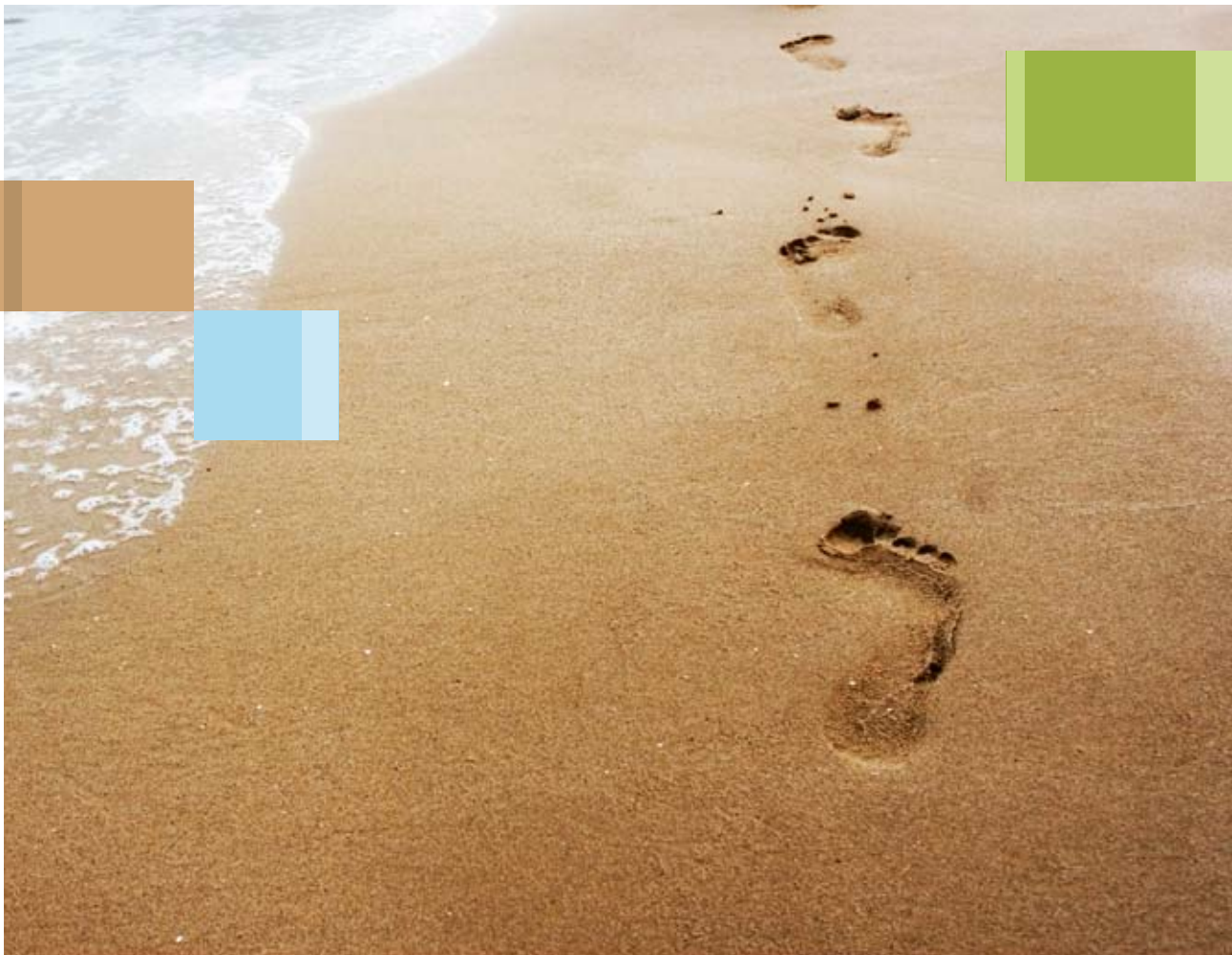


Federal Ministry for the  
Environment, Nature Conservation  
and Nuclear Safety

Federal Ministry  
for Economic Cooperation  
and Development

# Climate Challenges

Germany's international approach



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## Foreword by the Federal Ministers

Climate change, with its far-reaching effects, has become one of the greatest challenges facing humankind today. More frequent natural disasters and weather extremes, increased water scarcity, inundated coastal zones and the accelerating extinction of species are just some of its direct consequences in developing and industrialised countries.

It is now clear that the costs of inaction will be far higher than the costs of protecting the climate. The question of how climate action – mitigation of climate change by reducing greenhouse gas emissions, and adaptation to its effects – in the developing countries is to be funded is a key topic in the climate process. It is down to us – governments, businesses and every individual – to take the action that is needed to avert the worst impacts of climate change and limit average global warming to two degrees Celsius. But this action is needed now, because time is running out.

So that developing countries can implement the measures they need to reduce emissions and adapt to the climatic changes already taking place, while also making progress on economic

and social development, they need extra financial support alongside their own financial resources. This support was pledged to them in principle in the Copenhagen Accord.

The investments that are needed for climate change mitigation and adaptation can only be deployed effectively as an integral part of developing countries' national sustainable development strategies. The challenge of protecting the climate has major implications for the developing countries in terms of their infrastructural development (energy and water supplies, urban development, mobility, disaster risk management), agriculture and forestry, and health care. National development policies must therefore aim to facilitate the required transition to low-carbon, climate-resilient economies – but to do so, they need support from the international community. Development policy today, like climate policy, is based on shared responsibility and mutual commitments by the partner countries. International cooperation must therefore be geared, in conceptual terms, towards the partners' own strategies and support them in a coherent and coordinated manner.



**Dr. Norbert Röttgen**  
Federal Minister for the Environment,  
Nature Conservation and Nuclear Safety

Germany has been one of the largest donors to climate action in developing countries and emerging economies for many years. In recent years, Germany's Federal Government has systematically expanded its climate commitment in the developing world: in 2005, its climate investments amounted to some 470 million euros, but within just five years, these more than doubled to around one billion euros annually (2009). A proportion of these financial resources is generated from an innovative financing mechanism, namely the auctioning of emission certificates in Germany. The revenue from emissions trading constitutes new and additional funding which comes not from the taxpayer but from the polluters themselves. The German Environment Ministry's International Climate Initiative (ICI) launched in 2008 is funded entirely by this innovative financing mechanism.

The Federal Government is playing its part in honouring the commitment made by the industrialised countries in Copenhagen to provide

**Dr. Norbert Röttgen**  
Federal Minister for the Environment,  
Nature Conservation and Nuclear Safety



**Dirk Niebel**  
Federal Minister for Economic Cooperation  
and Development

“fast start” financing for climate measures in the developing countries for the period 2010–2012. It will continue to increase its investment in international climate protection, also with a view to longer-term financing needs. The funding is deployed by the Federal Ministry for Economic Cooperation and Development (BMZ) and the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU). Both ministries support the partner countries' activities on mitigation of climate change through emissions reduction, adaptation to the impacts of unavoidable climate change, and the conservation and sustainable management of natural carbon sinks.

Climate-compatible development is the future for all the world's countries. A reliable global framework is needed here – and now it is down to us to create it. Our credible and transparent commitment to protecting the climate in developing countries is the key to success.

**Dirk Niebel**  
Federal Minister for Economic Cooperation  
and Development

## Germany: A reliable partner for climate protection

A global challenge such as climate change requires global action. The Federal Government is continuing to work actively to forge a comprehensive international climate agreement, which aims to limit global warming to a maximum of two degrees Celsius. After Copenhagen, it is clear that such an agreement will not be achieved as a “big bang”. Rather, the task now is to build on the Copenhagen Accord and make gradual progress on the basis of practical operational decisions and procedural rules relating to mitigation of climate change through emissions reductions, adaptation to climate change, forest conservation, technology, and measurement, reporting and verification (MRV). All the various country groups must make tangible contributions in this context.

The Federal Government is actively driving the international climate process. Germany is setting itself ambitious national climate targets in order to act as a role model: this includes the target of reducing its greenhouse gas emissions by 40 per cent by 2020 compared with the baseline year, 1990. Besides the Federal Government is scaling up its engagement in support of the developing countries’ mitigation and adaptation efforts, and is providing fresh momentum for the climate process, for example through the Petersberg Climate Dialogue in May 2010.

### Climate financing

One of the most important issues in the current climate negotiations is the issue of financing for mitigation and adaptation measures. Developing countries in particular need financial support here. The industrialised countries will honour their responsibilities in this context: in the Copenhagen Accord, developed countries committed to a goal of mobilising jointly 100 billion US dollars a year by 2020 to address the climate needs of developing countries. The developed countries also committed to providing new and additional resources as “fast start” financing, approaching 30 billion US dollars for the period 2010–2012. The Federal Government will contribute a total of 1.26 billion euros. These funds are additional to the level of climate related support in 2009 already made, with balanced allocation between adaptation, mitigation and forest conservation (REDD) measures. Germany has already made available an initial tranche of this fast start financing in 2010, aiming at committing about 356 million euros by the end of 2010. The funds are deployed by the Federal Ministry for Economic Cooperation and Development and the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety via multilateral and bilateral projects, see fig 1. Germany will report in detail on the precise use of its “fast start” financing during the implementation process on [www.faststartfinance.org](http://www.faststartfinance.org).

**Fig. 1: Germany's contribution to "fast start" financing, 2010**

Mitigation	Adaptation	REDD+
<ul style="list-style-type: none"> <li>Clean Technology Fund: 125 million euros</li> <li>UNDP – MRV: 5 million euros</li> <li>Bilateral projects: 67 million euros</li> </ul>	<ul style="list-style-type: none"> <li>Pilot Program for Climate Resilience: 9 million euros</li> <li>Adaptation Fund: 10 million euros</li> <li>UNEP/UNDP Ecosystem-based Adaptation Flagship: 10 million euros (under preparation)</li> <li>Bilateral projects: 53 million euros</li> </ul>	<ul style="list-style-type: none"> <li>Forest Carbon Partnership Facility: 30 million euros</li> <li>Bilateral projects: 47 million euros</li> </ul>
<b>Total: 197 million euros</b>	<b>Total: 82 million euros</b>	<b>Total: 77 million euros</b>

Planned, as at 30 September 2010.

### Measuring progress

As a core element of a future international climate agreement, the contracting parties will be required to present their progress on climate in a measurable, reportable, and verifiable (MRV) manner. This focuses on the verifiable implementation of measures and the question of the extent to which these contribute to emissions reduction and hence to climate protection. This is a particular requirement for actions and measures implemented by developing countries that seek support from international financing. At the Petersberg Climate Dialogue, Germany, together with South Africa and South Korea, initiated a partnership on mitigation and MRV. This aims to promote an exchange of relevant practical experience and thus contribute to a shared understanding in the field of MRV.

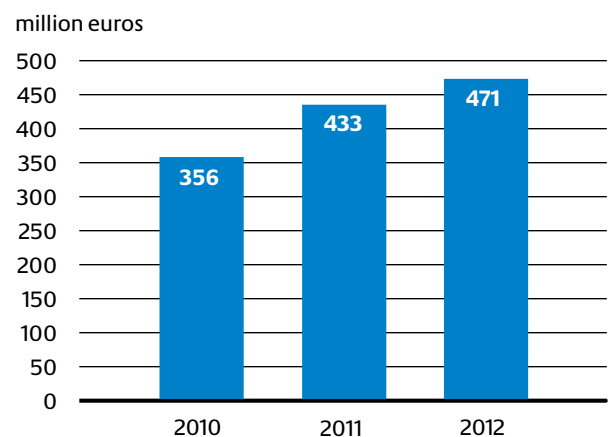
### Climate protection for sustainable development

Climate change threatens to reverse development progress already made, and also puts at risk the attainment of the Millennium Development Goals, such as reducing by half the proportion of people facing hunger and extreme poverty, by 2015. However, international efforts in this context also offer development opportunities. Germany supports its partner countries' efforts to adapt to the impacts of climate change while pursuing sustainable economic development. German development cooperation has, for many years, mainstreamed climate in all areas of project planning. From 2011, the Federal Government will introduce a mandatory environmental and climate assess-

ment procedure, with all development projects being evaluated in terms of their climate impact.

### Climate change mitigation and adaptation in practice

The Federal Government has, for many years, supported projects in developing countries and emerging economies which demonstrate how mitigating climate change and adapting to its effects operate in practice. Whether they focus on mitigation through the expansion of renewable energies, conservation of forests as carbon reservoirs, or the protection of coastal zones from rising sea levels – all these projects not only support the partner countries but also provide valuable experience which can feed into and provide important impetus for the international climate process.

**Fig. 2: Implementation of German "fast start" commitment**

Planned, as at 30 September 2010.





## Reducing emissions: Creating a sustainable economy, limiting climate change

Renewable energies are essential for reducing greenhouse gas emissions.

In order to limit global warming to less than two degrees Celsius above the pre-industrial level, global greenhouse gas emissions will need to be at least halved by 2050. This means decoupling economic growth from greenhouse gas emissions in order to create a sustainable, low-carbon economy. This will require an enabling policy setting and access to financing, know-how and technologies worldwide.

The development and piloting of innovative technologies and the dissemination of the results will help to create an ecologically sustainable and profitable global economy. It will also reduce dependency on fossil fuels, create jobs and support efforts to combat poverty. The Federal Government is working closely with developing countries and emerging economies and is actively engaged in the following areas:

### Driving climate policy forward

Policy-makers and business leaders everywhere must create an enabling setting for climate protection and take corresponding action. The Federal Government is supporting its partner countries in this process. Projects initiated by the Federal Government with partner countries

build capacities and develop methodologies and mechanisms for emissions reduction, with a particular focus on renewable energies and energy efficiency. The aim is to develop comprehensive national climate protection programmes and support their implementation.

### Improving energy efficiency, deploying renewables

Expanding the use of renewable energies and increasing energy efficiency can do much to cut energy consumption and greenhouse gas emissions. This also reduces local air pollution, improves quality of life and boosts the economy. In many cases, however, there is a lack of access to modern technologies and little detailed knowledge about their possible uses. This is often exacerbated by unfavourable political and economic conditions and a lack of financing. Germany supports its partners by providing policy-makers and local market participants with advice, training and access to infrastructure and expertise and by contributing to financing mechanisms to promote sustainable investment and pilot projects. All these activities foster the development and implementation of low-carbon strategies on a broad basis.

### **Expanding the carbon market and emissions trading**

The carbon market is a key instrument for global climate change mitigation. It puts a price on emissions, thereby creating incentives for emissions reductions. Projects supported by the Federal Government demonstrate the emissions reduction potential of this instrument and help to expand emissions trading to more countries, technologies and sectors. They focus on innovative techniques and project types, such as the Clean Development Mechanism (CDM) or of Activities (PoAs). The approach taken safeguards the social and ecological sustainability of the carbon market.

### **Reducing ozone-depleting greenhouse gases**

Although the Montreal Protocol on Substances that Deplete the Ozone Layer requires ozone-depleting greenhouse gases (F-gases) to be replaced by climate-neutral refrigerants, the proportion of these gases in total greenhouse gas emissions is rising steadily. This is due to the increasing use of refrigeration and air-conditioning technology worldwide. This applies particularly to the developing and emerging economies. Germany is therefore supporting projects which

promote the switch to natural refrigerants such as ammonia, hydrocarbons and carbon dioxide.

### **Developing sustainable transport and waste management systems**

The need for mobility is steadily increasing worldwide. In the emerging economies in particular, the transport sector has made an ever-increasing contribution to high greenhouse gas emissions in recent years. The Federal Government is promoting the piloting and dissemination of innovative drive technologies in the electromobility and hybrid drive sectors. It further supports the development and implementation of sustainable transport strategies.

Modern waste management not only conserves resources and improves local environmental conditions. It can also help to reduce methane emissions, which are a particularly potent climate gas. Residues from agriculture and the food industry, as well as organic waste and wastewater from households, can be used as a resource for the sustainable production of bioenergy. The Federal Government supports projects which focus on climate-smart waste management and harness the energy potential of wastes, particularly organic residues.





Solar power plants generate sustainable energy in Morocco.

## The MENA region – energy as an economic sector

With their desert plains, low risk of rainfall and relatively well-developed road networks and power grids, the countries of the Middle East and North Africa (MENA) region have the best possible conditions to harness wind and solar energy. If just two per cent of the Sahara Desert were covered in solar panels, it would generate enough power to meet the entire world's energy needs.

Today, fossil fuels are still the main source of the energy supply for the countries in the MENA region. However, the majority of these countries have recognised the opportunity afforded by renewable energies and have developed ambitious national expansion plans for wind and solar power. The electricity generation potential in the MENA region is so immense that besides meeting their own national energy needs, these countries could also export green electricity to Europe in the long term.

### Expanding renewable energies, increasing energy efficiency

If these countries are to make a sustainable contribution to their energy security and national value added as well as protecting the climate, there

must be a significant decrease in energy demand and the costs of renewables in these countries. Furthermore, the political and economic framework must be improved, and know-how developed. The Federal Government is therefore supporting investment in renewable energies and energy efficiency measures and is working with relevant actors in this context. The “Plan Solaire Méditerranéen” (MSP) within the Union for the Mediterranean is intended to expand renewable energies in the Mediterranean countries. Bilateral funds and multilateral financing mechanisms, such as the World Bank's Clean Technology Fund (CTF), are dovetailed in order to leverage the requisite funding for infrastructural development. The CTF is providing the MENA region with 750 million US dollars for this purpose. Germany is the third largest donor to the CTF. Besides these intergovernmental initiatives, the private sector's DESERTEC Industrial Initiative (Dii GmbH) promotes the generation of clean, green electricity in North Africa and its export to Europe.

### Morocco – an ambitious Solar Plan

With the Kingdom of Morocco's Solar Plan, presented in 2009, the Moroccan Government has

sent out a clear signal that it aspires to be a committed partner in efforts to move towards a sustainable electricity supply. The Plan provides for the installation, by 2020, of five solar power plants with an overall capacity of 2,000 MW, with total investment of around 9 billion US dollars. Their output would be sufficient to cover 18 per cent of current annual electricity production and save 3.7 billion tonnes of CO<sub>2</sub> emissions per annum. The Federal Government is currently supporting the installation of a 500 MW concentrated solar power (CSP) plant, as the first reference project in Ouarzazate, by providing a low-interest loan of 80 million euros.

#### **Egypt – massive wind energy potential**

Egypt has some of the best wind energy locations in the world. By far the largest wind farm in Africa is located at Zafarana. The installation of several thousand megawatt of power plant capacity is planned at wind farms in the Gulf of Suez and Gabel El-Zait area. The necessary transmission lines to connect the wind farms to the national grid are currently being funded by the CTF, which provides 150 million US dollars to Egypt. Besides infrastructural development, the German Government is also promoting the establishment of more favourable legal frameworks, as there are still various legal and financial challenges to overcome before the full commercial utilisation of wind power can be achieved. Germany further supports professional skills development for plant and grid operators.

#### **Jordan – improving energy efficiency in the water sector**

Reducing electricity consumption makes the most significant contribution to climate change mitigation. The Water Authority of Jordan (WAJ) is the largest electricity consumer in Jordan, using about 15 per cent of the country's total electricity production, and also produces substantial greenhouse gas emissions. One reason is that due to Jordan's hydraulic conditions, fresh water must be pumped from the Jordan Valley to reach the

country's major cities. The operation of the pumps is often inefficient, and many of the pumps are poorly maintained, resulting in WAJ's extremely high electricity consumption.

The Federal Government is therefore supporting interventions to make pumping operations more energy efficient. Support is also being provided for the Water Authority in order to develop technical and financial solutions to improve quality standards and operational management. As a result of these measures, annual CO<sub>2</sub> emission reductions of 1,500 tonnes are being achieved.



Egypt is an ideal location for generating wind energy.



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ACAD supports carbon market projects in Africa, for instance with the low-cost and efficient Nuru Lights system.

## Sub-Saharan Africa – expanding the carbon market

Emissions trading is one of the most important weapons in the fight against climate change. And yet Africa's total share of projects implemented under the Clean Development Mechanism (CDM) is negligible, and very few African countries are currently benefiting from carbon trading. Sub-Saharan Africa in particular faces a shortage of trained project developers and has little experience in assessing the risks associated with project implementation. What is more, there are few tried and tested methods for certifying emissions reductions under Africa's specific conditions. Africa's financial sector also lacks the capacity and skills to develop carbon trading schemes. Adding to these problems, local and regional financial institutions and investment intermediaries are often reluctant to take on these financial risks due to the often very high transaction costs.

### Financing projects, building capacities

The African Carbon Asset Development (ACAD) Facility, which is supported by the Federal Government, aims to overcome these obstacles and develop local carbon market pilot projects in Africa. ACAD seeks to build local partners' skills and capacities in emissions trading, create a self-sustaining momentum in the African carbon market, and mobilise the financial sector in particular. To that end, it takes on a share of the transaction costs, provides advisory services for investors, project developers and local carbon traders, and supports capacity building through the provision of training. The projects supported by the Facility are important pilots which must be easily transferable. The aim is thus to reduce transaction costs in the carbon market and open the way for follow-up projects.

## Thailand – strengthening climate policy

Thailand is severely impacted by climate change. Rising sea levels will put coastal regions, farmland, coastal fishing and even the capital, Bangkok, at risk, while inland areas will have to contend with an increase in frequency and severity of flood incidents and droughts. Furthermore, Thailand's per-capita greenhouse gas emissions are relatively high in comparison to other countries in the region. Most of the country's forests have been cleared, depriving Thailand of important carbon sinks.

### Policy advice

Germany is supporting Thailand's efforts to meet these challenges. Within three projects comprising the Thai-German Climate Change Programme, the Government of Thailand is receiving advice on climate policy. The programme's centrepiece is a project which assists the Office of Natural Resources and Environmental Policy and Planning (ONEP), under Thailand's Ministry of Natural Resources and Environment (MNRE), to establish a coordinating office which will develop and manage relevant policy measures. The project

advises on the preparation and evaluation of international negotiations and conferences, on the development and implementation of the Thai Climate Change Strategy, and on raising public awareness of the challenges associated with climate change and managing climate data.

### Practical mitigation

The other two projects within the programme focus on implementing practical mitigation measures. One of the projects aims to increase energy efficiency in small and medium-sized enterprises (SMEs) in key industrial sectors such as ferrous metal and aluminium casting, glass-making, textiles and the food industry. The third project promotes nature-based tourism in Thailand. It assists Thai partners to incorporate aspects of climate change mitigation, environmental conservation, and adaptation to climate change into tourism development plans as part of a national strategy.





## REDD+: Reducing emissions from deforestation and forest degradation

The Brazilian rainforest is an important carbon reservoir.

Forests, mires and other forms of ecosystems absorb and store vast quantities of carbon dioxide. Destruction of these massive carbon sinks releases enormous amounts of greenhouse gas emissions, which contribute to climate change. There is an international consensus that the conservation of forests and other ecosystems is a cost-effective way of mitigating climate change and conserving biological diversity, thereby helping to safeguard our natural life-support systems. Deforestation and degradation of forests accounts for as much as 20 per cent of global annual CO<sub>2</sub> emissions. Conserving forests and other carbon sinks is therefore a key topic in the international climate process.

The mechanism for reducing emissions from deforestation and forest degradation (REDD+) currently under discussion within the UNFCCC framework is intended to create incentives for avoiding deforestation and forest degradation and to keep forests standing as carbon sinks. The aim is to develop a transparent and verifiable system for the payment of compensation to forest-rich developing countries for proven emissions reductions achieved through forest conservation and restoration. This approach offers great

potential, also for sustainable economic and social development in the tropical forest countries.

Germany takes the importance of forests in climate protection very seriously. At the Petersberg Climate Dialogue in Bonn and the Oslo Climate and Forest Conference that established the Interim REDD+ Partnership in May 2010, the Federal Government pledged to provide around 30 per cent of the 1.26 billion euros announced as “fast start” climate financing for REDD+. This amounts to a commitment of more than 350 million euros for forest conservation.

### **Building on tried and trusted methods**

Through its international cooperation, Germany has played an active and successful role in forest conservation for many years. Germany was also involved in setting up and providing start-up financing for the multilateral Forest Carbon Partnership Facility (FCPF), which develops key standards and benchmarks for national REDD programmes. On that basis, Germany is already supporting projects which develop national strategies for REDD+ and establish the appropriate legal, financial and institutional frameworks

(“REDD readiness”). These bilateral and multilateral projects provide policy advice and technical expertise, leverage the requisite investment financing, support institutional capacity building, and promote knowledge-sharing and the exchange of experience. Communities which depend on forests for their homes, livelihoods and food supply are involved in this process and their specific needs are taken into account. In simple terms, the REDD process consists of three phases, see fig. 3.

### Germany's role in the FCPF

Germany has been a driving force in establishing, developing and providing start-up financing for the FCPF. In this context, it is able to draw on experience gained with other multilateral forest conservation initiatives, such as those operated by the Global Environment Facility (GEF), as well as its many years of bilateral commitment to tropical forest conservation. The FCPF supports national efforts to achieve REDD readiness in up to 37 partner countries, and is currently developing pilot projects for the payment of compensation for successful reduction of deforestation and its associated emissions. The FCPF is now successfully developing quality standards for REDD+ and provides a key learning platform, benefiting partner countries, civil society and donors alike.

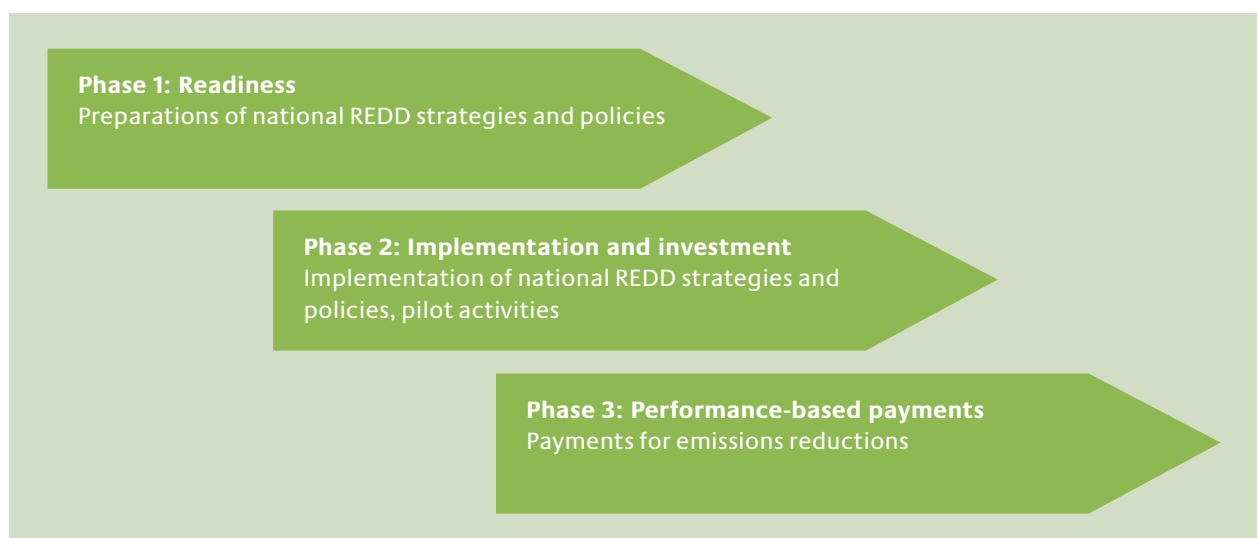
### Conserving biological diversity and natural resources

Besides their climate-stabilising effect, intact forests provide habitats for numerous species of flora and fauna. They regulate the hydrological regime, provide protection from soil erosion, supply vital resources such as timber, food and medicinal plants and are thus an important source of income for indigenous communities and local populations.

The Convention on Biological Diversity (CBD), adopted in 1992, plays a key role in conserving biodiversity and ensuring that forests are managed sustainably and can continue to provide ecosystem services. Germany does much to support CBD implementation.

Forest conservation under REDD+, the preservation of biodiversity and the sustainable management of forest resources in the interests of sustainable development all go hand in hand. Germany is working to ensure that biodiversity policies are linked with REDD+ strategies in order to generate synergies between the UNFCCC instruments and the CBD, thus facilitating the efficient and effective use of available resources.

**Fig. 3: The three REDD phases**





## Brazil – conserving forests, climate and biodiversity

The Brazilian rainforest is one of the Earth's most significant ecosystems and plays an important role in regulating the global climate. The forests are a major carbon sink. They are also one of the world's largest biodiversity hotspots and provide a natural habitat for numerous indigenous communities.

However, the Brazilian rainforest is under threat: vast tracts of forest have already been destroyed by burning and illegal logging, motivated among other things by the need to create grazing land for cattle ranching and arable land for soya and maize cultivation, as well as by commercial logging interests. Mining, dam-building and illegal land-grabbing are also increasing the rate of forest clearance. As a consequence of all these activities, carbon dioxide emissions are produced in vast quantities, contributing to global warming. Forest clearance in the Amazon accounts for almost 60 per cent of Brazil's greenhouse gas emissions. The Atlantic coastal forests (Mata Atlântica) are also important carbon reservoirs and are under great threat from forest clearance. Livestock husbandry and arable farming, the spread of settlements and the growth of industrial centres also pose major threats to biological diversity in these species-rich habitats.

### Germany: supporting Brazil's climate goals

Brazil has set itself ambitious national climate protection targets: for example, it is committed to a 38 – 39 per cent reduction in its greenhouse gas emissions by 2020 compared with 2005. In order to achieve this target, it aims to decrease the rate of forest clearance in the Amazon by 80 per cent. It is also making efforts to meet its commitments under the Convention on Biological Diversity (CBD). Close cooperation with Germany's Federal Government underpins Brazil's efforts to attain these ambitious goals. Since the mid-1990s, the Federal Government has supported a number of projects focusing on various aspects of forest conservation. In all, Germany has already provided some 350 million euros to protect Brazil's rainforest. During recent years Brazil's efforts to reduce deforestation rates achieved very positive results.

### Promoting transnational dialogue

Cooperation among the Amazon riparian states is essential in order to protect the region's rainforests. The Federal Government is therefore providing support for the Amazon Cooperation Treaty Organization (ACTO). The Treaty was concluded by the Amazon countries in 1978 and aims to promote transnational coordination on



Tree seedlings are used in reforestation projects.

matters relating to the Amazon. Policy advice, knowledge-sharing and technology transfer help to build the capacities of ACTO's Permanent Secretariat in Brasilia and the regional and national units in the eight Member States. Relevant activities include the introduction of mechanisms for developing agreed positions at national, regional and international level, and the development of instruments for planning, financing and funding, which take into consideration the diverse needs of all stakeholders.

#### **Expanding and managing protected areas**

The projects supported by the Federal Government promote the management and expansion of existing protected areas. They advise the Brazilian partners on combating forest fires, on reforestation in buffer zones, the creation of ecological corridors, and the promotion of adapted forms of management. Radio stations and satellite technology help to monitor the vast tracts of forest and detect illegal logging and forest clearance activities. As part of the projects, local stakeholders involved in the on-site management of the protected areas are provided with infrastructure and equipment as well as advice and training, and work with experts to develop appropriate strate-

gies, management techniques and instruments. To date, 128 nature reserves have been established in the Amazon region and Mata Atlântica, with a combined area of more than 220,000 square kilometres. Monitoring systems are in place to investigate how forest conservation can help to reduce greenhouse gas emissions and promote biodiversity.

#### **Involving local communities**

In order to safeguard the long-term success of the protected areas, economic incentives must be created for local communities. To that end, more than 500 small-scale projects have been set up to develop opportunities for the environmentally sound and sustainable use of resources by the indigenous communities. Indigenous territories can form natural barriers against deforestation and forest degradation. The indigenous communities are involved in the designation of the areas and learn how to defend themselves more effectively against illegal land-grabbing. This helps to safeguard their livelihoods and conserves the forests at the same time.



## Adapting to climate change: Responding to its impacts

Specific agricultural methods support adaptation to climate change.

The impacts of climate change are already being felt all over the world. The direct human impacts include decreased yields in agriculture, flooding, threats to water and energy supplies in remote and coastal regions, and the spread of epidemics. Global warming is also a factor in the extinction of endangered species.

Climate change plays a key role in the worsening of poverty and social tensions worldwide. Due to their poorer adaptive capacities, developing countries are affected to a very significant extent by climate change impacts such as drought, floods and storms. If they are to respond effectively to the climate change impacts that can already be felt and also take preventive measures in anticipation of future developments, their technical and financial capacities must be improved.

### Developing national adaptation strategies

The primary objective of German climate policy is to raise partner countries' awareness of the impacts of climate change in all spheres of life and support these countries' adaptation processes. In order to initiate the necessary steps towards adaptation to a changing environment, national

decision-makers must be as well-informed as possible. In many cases, however, there is a lack of adequate data about the local impacts of climate change and few of the skills and infrastructural capacities needed to develop solutions. As an initial step, national adaptation strategies can be prepared, followed by efforts to fully integrate adaptation into policy-making in the partner countries and make available the requisite funds also from national budgets. Together with partners, policy options for the affected areas – such as water and resource management, nature conservation, development of infrastructure, rural development and food security – can then be formulated. This must include practical adaptation measures such as building dykes, setting up flood early warning systems, introducing disaster risk management systems, and establishing appropriate insurance schemes. Above all, however, building human and institutional capacities and skills must be a priority.

### Taking action at local level

In cooperation with partners, the Federal Government also supports adaptation to climate change in developing countries through country-specific



and regional interventions. This includes setting up protected areas for the conservation of climate-relevant ecosystems, which often also form the basis of fisheries, agriculture or tourism. Other measures include piloting weather insurance schemes, developing new cultivation strategies for agricultural products, or trialling stress-resistant varieties of crop. In its strategy, the Federal Government further aims to utilise the synergies generated by public-private partnerships. These alliances are intended to leverage investment and promote innovation.

#### **Building capacities for climate negotiations**

At international level, the Federal Government works to ensure that the developing countries particularly affected by climate change are able to represent their interests effectively in the UN climate process. Seminars are provided as a means of equipping the partner countries with the specialist skills that they require in order to develop their own positions for the climate negotiations and assert these positions effectively.

#### **Comprehensive financing**

The countries around the world which are suffering most from the impacts of climate change only produce a relatively small proportion of global greenhouse gas emissions themselves. According to a recent study by the World Bank, however, it will soon cost developing countries 75–100 billion US dollars a year to adapt to climate change. The Federal Government is therefore playing an active role in multilateral financing mechanisms such as the Pilot Program for Climate Resilience (PPCR), which is part of the Climate Investment Funds (CIFs) managed by the World Bank. Specialised funds of the Global Environment Facility (GEF) and the Adaptation Fund (AF), to which Germany contributes, also provide funding for capacity building and adaptation measures.<sup>1</sup>

#### **Maintaining capacity to act in the face of uncertainty**

Despite the major progress being made in the scientific assessment of climate change impacts, our understanding of its future effects is beset with uncertainty.

Adaptation therefore also means being able to respond flexibly to climate change in future. The partner countries' adaptation strategies must be constantly updated in response to new findings in climate research, economic and social developments and new requirements in affected areas. The same applies to the Federal Government's own strategy as well. This dynamic system presents a new challenge for the partner countries and German climate policy alike: the partner countries must be supported in their efforts to make far-reaching and responsible decisions in the face of numerous imponderables. Viable networks are therefore needed to promote exchange between scientists, experts and policy-makers.

<sup>1</sup> For further information, please see the section on multilateral financing.

## Pacific island countries – protecting coastlines and water resources

For most people in Europe, climate change is still an abstract concept, but for many communities in the Pacific island countries (PICs), it is already a reality. Due to their limited land area and low profile – only a few metres above sea level in many cases – these scattered islands are defencelessly exposed to the natural events which are becoming more extreme as a result of climate change. The intensity of rainfall and hurricanes, for example, is increasing, causing ever more frequent floods. Waves several metres high then often batter the coasts or inundate entire areas of the islands. Periods of drought are also becoming longer. These effects have serious consequences for humans and the environment, including the destruction of crops, salinisation of drinking water, and coastal erosion, adversely affecting or even destroying the islanders' livelihoods, which depend primarily on agriculture and fisheries.

### A comprehensive project portfolio

Germany supports a number of major climate protection programmes throughout the Pacific Island Region. In Micronesia, Palau and the Marshall Islands, for example, the Federal Government is supporting the implementation of the Micronesia

Challenge initiative. The overall goal of the Challenge, launched in 2006, is to conserve at least 30 per cent of the near-shore marine resources and 20 per cent of the terrestrial resources across Micronesia from the impacts of climate change by 2020 through the designation of protected areas. In the Indo-Pacific Ocean, the Federal Government supports the Coral Triangle Initiative, launched by six governments in order to conserve a habitat that sustains around 200 million people. The waters of the Coral Triangle hold the highest diversity of marine species in the world. The Initiative aims to conserve this diversity through the designation of protected areas while increasing the region's adaptive capacities to climate change.

### Building regional know-how

In order to achieve sustainable successes, the support from the Federal Government is targeted at all levels – regional, national and local. One of the main objectives of German-Pacific cooperation, for example, is to strengthen the capacities of the Secretariat of the Pacific Community (SPC), a regional advisory body, by sharing climate-related knowledge and methodologies. As a result, SPC is now developing its own climate advisory services



Marine conservation areas preserve the biodiversity and the livelihood of the local residents.

and mainstreaming climate change adaptation in all its programmes.

#### **Climate-proofing national policies**

At national level, the Federal Government assists its partner countries in their efforts to develop adaptation strategies and integrate climate change into their core economic sectors, namely agriculture and forestry, and into land-use planning and water management. In Tonga, for example, 31 substantive changes have been incorporated into the new forest policy in order to take account of the changed realities resulting from global warming. Tonga is thus at the forefront of efforts in the Pacific. Similar initiatives are currently being implemented in Vanuatu and Fiji.

#### **Implementing pilot projects**

It is important, at the same time, to implement pilot projects at the local level in conjunction with island communities. On the island of Eua (Tonga), for example, overexploitation by agriculture and grazing poses a very serious threat to forest areas, so these areas are now being fenced off by the forestry administration with support from the local community. Afforestation measures

are planned for larger areas of slope at risk from erosion. A climate-proof land-use plan is being developed, which will also involve the trialling of new farming techniques and crops to improve climate resilience.

Particularly on the more remote and hard-to-reach islands, however, there is still very little awareness of climate change among local communities. Comprehensive information and education campaigns are therefore extremely important here. Climate-related teaching materials are now being produced in pilot projects and integrated into the curriculum.

#### **Extending the German commitment**

Germany's commitment in the Pacific Island Countries goes back to 1977. Aware of the trans-regional effects of climate change, German bilateral cooperation now focuses on the Pacific region as a whole, rather than on individual island states. Germany is providing 19.4 million euros in total for the current portfolio of climate change adaptation programmes in the Pacific Island Region.





Improved climate risk assessment methodologies help to identify and evaluate climate threats in India.

## India – substantial need for action in rural areas

Much of India's agricultural land is cultivated extensively through rain-fed farming. The sub-continent's farmers are therefore heavily dependent on the monsoon, which accounts for around 80 per cent of the annual rainfall. However, climate change could radically alter the monsoon season in India and cause temperatures to rise – with catastrophic consequences for farmers. Heavy rainfall could cause flooding in the south of the country, while vast areas in the north-west face the threat of drought. These changes will impact severely on the most vulnerable section of Indian society, the rural poor, whose livelihoods still largely depend on agriculture and forestry.

### Agroclimatic differences

The Indian Government is aware of the problem and unveiled a National Action Plan on Climate Change (NAPCC) in 2008. The Indian states are also required to formulate their own State Action Plans on Climate Change (SAPCC), which define their proposed actions on adaptation to climate change. A key challenge, in this context, is to take account of the major agroclimatic differences within the various Indian states.

In addition to assisting the states in producing climate action plans, Germany is committing six million euros to support the Climate Change Adaptation in Rural Areas of India (CCA RAI) project in four states: Madhya Pradesh, Rajasthan, Tamil Nadu and West Bengal. These were selected as project areas as they are most representative of India's diverse range of climatic zones.

### Risk assessment at state level

A key component of the project is developing appropriate vulnerability and risk assessment methodologies in order to identify and evaluate climate and environmental threats, such as flooding in coastal regions, e.g. the Sunderbans, more accurately. This provides the Indian states with the information they need to identify those sectors, regions and population groups that will be particularly affected by climate change in future, enabling them to target public investment programmes accordingly.

### Individual adaptation

As there is little experience in India at present in dealing with specific climate risks, the project focuses on implementing pilot schemes in the

agriculture and forestry sectors and in coastal protection. For example, salt-tolerant plants are being trialled on farmland at risk from saltwater flooding in West Bengal and Tamil Nadu.

#### **Climate proofing government programmes**

The Indian Government is carrying out large-scale investment schemes in rural areas. Within the project framework, Germany is supporting the application of a tool to identify possible climate risks which could jeopardise the sustainability of these investment programmes in future. CCA RAI is the first project to develop, test and promote climate proofing of large-scale public investment programmes.

#### **A new regional priority: north-east India**

India's north-east, with its higher altitudes and, in some areas, high mountains, faces major problems on a similar scale. On the steep mountain slopes, land that can be used for farming is scarce. Mudslides are occurring with increasing frequency after heavy rainfall, accompanied by massive flooding of fields and entire villages, destroying harvests. The Federal Government is therefore planning to support a further adaptation programme, comprising financial and technical cooperation, in north-east India, with total funding of 81 million euros.

## **Ghana – innovative insurance schemes for climate change adaptation**

Ghana is very vulnerable to the impacts of climate change. By 2100, the mean daily temperature is expected to increase by three degrees Celsius and rainfall to decline significantly. As a consequence, the frequency and intensity of droughts, floods, and other extreme weather events will increase, adversely affecting the country's agricultural sector: fertile land will be lost, crop yields will decline dramatically, and farmers' financial exposure will increase. At present, it is almost impossible for the Ghanaian population to protect themselves against these threats, which put many families' livelihoods at risk and damage the country's economy.

#### **Innovative insurance solutions offer protection from climate-related crop failures**

The German Government is therefore supporting a project to develop innovative insurance solutions against financial risks to agriculture caused by extreme weather events and other impacts

of climate change. These agricultural insurance products are trialled by local insurance providers in pilot schemes and then brought to market. The project also provides advisory services for insurance companies, facilitates contacts with international reinsurers, and offers training for insurers' employees. In order to raise awareness of insurance products, basic financial training is also offered for potential clients. With these interventions, the project aims to create an enabling policy setting for the deployment of these insurance products. The meteorological infrastructure is also being improved in order to support the collection and analysis of data for the calculation of insurance risks.

The agricultural insurance schemes will improve income and food security, the supply of credit, and employment opportunities for the rural population in Ghana.

## International climate financing: Innovative instruments

At the Climate Conference in Copenhagen, the industrialised countries pledged to support developing countries in their endeavours to reduce emissions and adapt to climate change. However, the 100 billion US dollars to be mobilised annually for this purpose, starting in 2020, cannot be raised without the long-term and reliable involvement of the private sector.

The private sector, however, continues to perceive that the risks associated with investing in areas such as expansion of renewable energies and increasing energy efficiency in developing countries are too high.

Two key questions must therefore be addressed in this context:

- How can public funds be used to stimulate private finance flows for climate protection?
- How can public funds be deployed to establish and improve the general framework for climate investment by the private sector in developing countries and emerging economies?

A range of innovative instruments is required here, their common feature being that they deploy scarce public funds intelligently in order to leverage as much private capital for investment in a low-carbon future as possible. In this way, every euro from public funds is matched with a significantly larger volume of funding from private sources.

### **Mobilising private capital to protect the climate – a practical example**

The Global Climate Partnership Fund is an instrument for mobilising public and, above all, private capital for investment in climate change mitigation in developing and emerging countries. It is a structured fund that combines public and private capital. The fund primarily supports financial institutions (commercial banks and non-bank financial institutions such as leasing companies) in the target countries in their provision of funding for investments in small and medium-sized enterprises (SMEs) and households in the fields of energy efficiency, renewable energies and reduction of greenhouse gases. Unlike other conventional loan facilities aimed at renewable expansion or increasing energy efficiency, this fund operates on

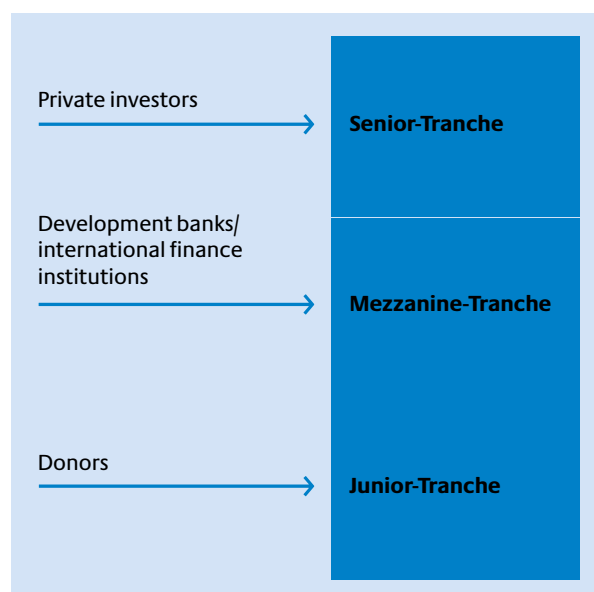
a revolving basis and does not consume the capital. At the same time, the public capital acts as a risk buffer to mobilise additional – especially private capital.

A structured fund consists of different risk tranches based on the different categories of shareholder. Donor capital makes up what is known as the junior or equity tranche, which is the first to absorb any losses. Public funds from the Federal Government and other donors are allocated to this tranche. Any further losses are then covered by the development banks and international finance institutions that have raised funds on the capital markets and invested them at their own risk in the mezzanine tranche. Only as a last resort private investors in the senior tranche would risk losses.

It is this hedging of risk that creates incentives for private investors to participate in a fund that invests in regions they are unfamiliar with (developing, transition, and emerging countries) and in innovative sectors (financing for climate change mitigation).

The Global Climate Partnership Fund was set up in December 2009 by KfW Entwicklungsbank on behalf of the Federal Government. Its professional fund manager – Deutsche Bank - was selected through an international tendering process. The fund has already secured pledges from investors of over 100 million US dollars, and is set to exceed 500 million US dollars by 2014.

**Fig. 4: Structure of the Global Climate Partnership Fund**



## Multilateral cooperation: The German contribution

The challenge of responding to climate change will require substantial investment. The developing countries in particular need financial support to enable them to reduce their greenhouse gas emissions and adapt to climate change. The industrialised countries are aware of their responsibility in this context, which they have reaffirmed with the pledge of further funds in the Bali Action Plan and the Copenhagen Accord.

Germany is making a substantial contribution here: in 2009 alone, the Federal Government invested around one billion euros in protecting the climate. The European Union is committed to providing an additional 7.2 billion euros in total during the period 2010–2012 as “fast start” financing; of this figure, 1.26 billion euros will come from Germany.

### **The Federal Government’s road map**

Germany uses its climate financing to fund both bilateral and multilateral cooperation. At present, the Federal Government invests most of these financial resources in bilateral projects. In 2009, for example, around 845 million euros were spent on mitigation and adaptation programmes in

partner countries. A further 97 million euros were leveraged via the International Climate Initiative, which funds climate projects from revenue from emissions trading.

### **Global Environment Facility**

The Global Environment Facility (GEF) as financial mechanism for the United Nations Framework Convention on Climate Change, to date, has provided more than 2.5 billion euros for climate projects in 165 countries. Germany is the third largest donor to the GEF, with a contribution of 347 million euros for the replenishment period 2010–2014. Two further Funds which specialise in financing adaptation programmes are operated by the GEF: these are the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF). The Federal Government is one of the main contributors to these Funds.

### **Climate Investment Funds**

The World Bank’s Climate Investment Funds (CIF) are designed to support rapid and scaled-up financing of climate projects in developing countries. Germany has contributed 550 million euros to the Funds’ total resources of 6.3 billion US dollars.



The CIFs comprise the Clean Technology Fund (CTF) and the Strategic Climate Fund (SCF). The resources available within the CTF, amounting to around 4.3 billion US dollars, promote scaled-up financing for low-carbon technology programmes to reduce greenhouse gas emissions in advanced developing countries and emerging economies. The SCF is divided in various sub-funds such as the Pilot Program for Climate Resilience (PPCR), to which Germany contributes 50 million euros.

### Adaptation Fund

Under the Kyoto Protocol, the Adaptation Fund is financed from the share of proceeds on Clean Development Mechanism (CDM) project activities, amounting to two per cent of certified emission

reductions (CERs). It is anticipated that an estimated 450 million US dollars will be available for adaptation projects in developing countries for the period 2010 - 2012. Germany is contributing at least 10 million euros to the Adaptation Fund in 2010. The conferral of legal capacity on the Adaptation Fund Board in Germany also supports its operationalisation.

### European cooperation

The European Development Fund (EDF) – the main financing instrument for the European Union’s development cooperation – also provides financing for climate projects. Germany is the largest contributor to both the EDF and the EU budget.

## Abbreviations:

<b>ACAD</b>	African Carbon Asset Development	<b>HFCs</b>	Hydrofluorocarbons
<b>ACTO</b>	Amazon Cooperation Treaty Organization	<b>ICI</b>	International Climate Initiative
<b>AF</b>	Adaptation Fund	<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>BC</b>	Bilateral Cooperation	<b>KfW</b>	KfW Bankengruppe
<b>BMU</b>	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety	<b>LDC</b>	Least Developed Country
<b>BMZ</b>	Federal Ministry for Economic Cooperation and Development	<b>LDCF</b>	Least Developed Countries Fund
<b>CBD</b>	Convention on Biological Diversity	<b>MDGs</b>	Millennium Development Goals
<b>CCA RAI</b>	Climate Change Adaptation in Rural Areas of India	<b>MRV</b>	Measurable Reportable Verifiable
<b>CDM</b>	Clean Development Mechanism	<b>NAMA</b>	Nationally Appropriate Mitigation Action
<b>CFCs</b>	Chlorofluorocarbons	<b>NAPAs</b>	National Adaptation Programmes of Action
<b>CIF</b>	Climate Investment Funds	<b>NAPCC</b>	National Action Plan on Climate Change
<b>CTF</b>	Clean Technology Fund	<b>ODA</b>	Official Development Assistance
<b>EDF</b>	European Development Fund	<b>PICs</b>	Pacific Island Countries
<b>EIT</b>	Economy In Transition	<b>PoA</b>	Programme of Activities
<b>EU</b>	European Union	<b>PPCR</b>	Pilot Program for Climate Resilience
<b>FCPF</b>	Forest Carbon Partnership Facility	<b>REDD</b>	Reducing Emissions from Deforestation and Forest Degradation
<b>F-gases</b>	Fluorocarbons	<b>SAPCC</b>	State Action Plan on Climate Change
<b>FS</b>	Fast Start	<b>SCCF</b>	Special Climate Change Fund
<b>GCCA</b>	Global Climate Change Alliance	<b>SCF</b>	Strategic Climate Fund
<b>GEF</b>	Global Environment Facility	<b>SIDS</b>	Small Island Developing States
<b>GHG</b>	Greenhouse gas	<b>SME</b>	Small and Medium Enterprise
<b>GTZ</b>	Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH	<b>UNDP</b>	United Nations Development Programme
<b>HCFCs</b>	Hydrochlorofluorocarbons	<b>UNEP</b>	United Nations Environment Programme
		<b>UNFCCC</b>	United Nations Framework Convention on Climate Change



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