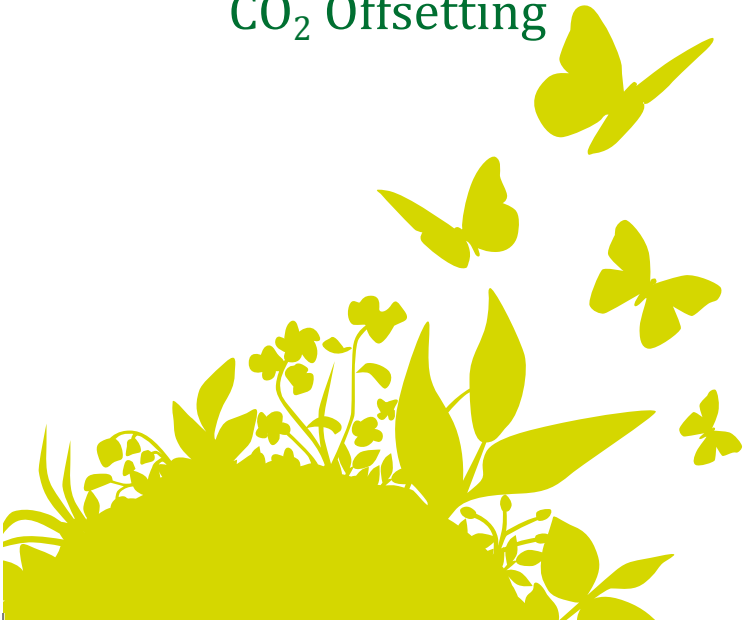




Carbon Offsetting for  
Better Climate Protection

An Overview of  
CO<sub>2</sub> Offsetting



**In this document, Klima-Kollekte provides an introduction to CO<sub>2</sub> offsetting and describes its services. A CO<sub>2</sub>-offsetting fund operated by Christian churches in Germany and other European countries, Klima-Kollekte provides opportunities for offsetting emissions by means of climate-protection projects.**

**Why are churches committed to the environment?  
This document will address this and other questions.**



## What is offsetting?

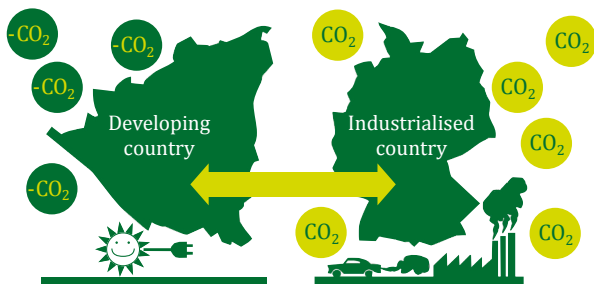
A certain amount of CO<sub>2</sub> is emitted somewhere in the world. Elsewhere, a climate-protection project prevents the same or greater amount of emissions.

This principle works because it is the concentration of atmospheric gases that impact the climate which is of crucial importance to global warming. It does not matter where said gases are emitted into the atmosphere. This distinguishes climate change from regional environmental concerns such as the pollution of water or soil.

Emission reductions can be realized, for instance, by constructing biogas systems in India. Private individuals benefit from this, as they no longer need firewood for cooking. Using biogas to cook results in considerably lower emissions compared to the greenhouse gases released when wood is burnt. Private individuals and companies in Germany finance such projects by offsetting their own emissions.

This is advantageous because CO<sub>2</sub> emissions can be reduced elsewhere more economically.

Carbon offsetting cannot simply replace emission reductions in industrialized countries. After all, the annual emission of greenhouse gases worldwide by 2050 is to be reduced by at least 50% compared to emissions in 1990! For this reason, Germany and other countries must severely restrict the amount of greenhouse gases emitted. It is thus important to offset any emission of greenhouse gases deemed unavoidable in the near term.



Offsetting between industrialized countries and developing countries

### **Protecting the climate: obviate, reduce, offset!**

Much of human activity results in the emission of greenhouse gases – from flying on planes to boiling water. The good news? There are comparatively climate-friendly alternatives for many people. We can make some changes right away, such as switching to green electricity or using

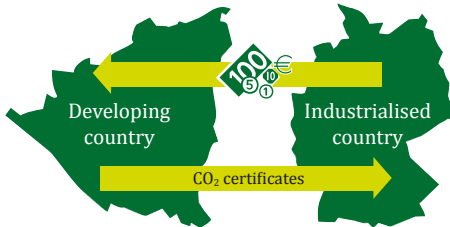


Construction of a biogas system in the Anantapur district of the Indian state of Andhra Pradesh



At-home biogas production in the Kolar district of the Indian state of Andhra Pradesh

public transportation instead of driving. Other measures entail more time and/or more money – installing energy-efficient heating or thermal insulation, for example. Primary motivation should certainly be to reduce one’s own environmental footprint – instead of “merely” erasing emissions by means of climate-protection projects.



Carbon offsetting in practice

## Types of carbon offsetting

In practical terms, offsetting is conducted by means of tradable certificates, frequently known as carbon credits. A certificate typically corresponds to one metric ton of CO<sub>2</sub>. Possession of such a certificate grants one the right, so to speak, to emit one metric ton of greenhouse gases. People sometimes speak of “emission rights”.




There are two types of carbon offsetting, or trading of emissions certificates, based on climate-protection projects:

## **1. National governments in scope of Kyoto Protocol** (compliance market)

Three flexible mechanisms – emissions trading, the Clean Development Mechanism (CDM), and Joint Implementation (JI) – are at the disposal of signatory states for achieving their reduction targets and for facilitating the trading of emissions rights. Emissions trading is regarded as a regulated market. Such trading is managed and overseen by the EU and/or its member states. As for the CDM, it is regulated by the CDM Executive Board, a United Nations agency. This agency must first approve a climate-protection project before its staff can sell certificates at this level. Certificates are generated during such projects and must be listed in the CDM registry; please see “CER” in the climate glossary.

The European Union oversees the EU emissions trading system, or EU ETS, for the energy-supply industry among others. Companies that participate in the EU ETS are granted a “pollutant budget” in accordance with their country’s national allocation plan. A cap, or limit, is set on the permitted amount of emissions. Caps are gradually reduced. A company must not emit more climate-damaging carbon dioxide than specified in their certificates, known as emission allowances.

If a company emits more than is specified in their emission allowances, then said company has three options:

-  Initiate measures to reduce CO2 emissions
-  Purchase emission allowances from EU ETS companies, domestic or international, that possess surplus allowances
-  Buy credits from emission-saving projects abroad executed as per the Clean Development Mechanism (CDM)

## **2. Voluntary market**

Emission-reducing carbon offsets bought and sold on the voluntary market can be traded in the EU ETS only if they have a supplemental certification as per the CDM standard. Projects differ in terms of scope and quality. Verified Emission Reductions, or VERs, are carbon offsets (project certificates) that have been certified not by the CDM standard but rather by others, such as The Gold Standard. On the voluntary market, projects sell their carbon offsets to individuals, municipal governments, regional churches, organizations, and institutions that are not obligated to offset their emissions but instead do so voluntarily. For this reason, CERs and VERs alike are valid options.



Quality assurance is ensured via project certification by, for example the Gold Standard Foundation.

Projects differ regarding scope and quality. These carbon offsets (certificates) are known as Verified Emission Reductions, or VERs.

Projects in industrialized, emerging, and developing countries. Establishment of carbon-offsetting solutions such as energy efficiency.

Emissions trading; cap-and-trade principle; carbon offsets (certificates) known as Certified Emission Reductions, or CERs

Joint Implementation between industrialized and emerging countries.

Clean Development Mechanism between industrialized and developing countries.

Carbon-offsetting solutions

Voluntary market

Compliance market (national governments)

Overview of climate-protection measures

## Criteria for sustainable emission reductions

One should consider several criteria when evaluating carbon-offset providers and services to ensure not only that emissions will indeed be offset completely, but also that carbon-offset projects contribute to sustainable development. After all, if carbon offsetting reduces emissions while harming society or the environment, then protecting the environment will also lead to new environmental or developmental problems. **Klima-Kollekte** projects meet demanding ethical standards. Our projects namely encourage the fight against poverty, support ethnic minorities and respect gender equality as well as promote education and health on site.

## **A. Klima-Kollekte projects: Ensure offsetting**

### **(1) Precise calculations**

As many parameters as possible must be considered to ensure accurate calculation of the emissions to be offset. As regards aviation emissions, one must keep in mind that CO<sub>2</sub> emitted at altitude has a greater climatic impact.

**Klima-Kollekte** uses a radiative forcing index (RFI) of 2.7 as a multiplier for aviation emissions (Fifth Assessment Report issued by the Intergovernmental Panel on Climate Change [IPCC] in November 2014).

### **(2) Take all greenhouse gases into consideration**

Key greenhouse gases include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). Methane and nitrous oxide are expressed in the form of CO<sub>2</sub> equivalents; they should likewise be taken into consideration and offset.

### **(3) Calculation of current emissions**

The data regarding current emissions – which is used for calculating reductions in emissions during a climate-protection project – must be collected in a legitimate and comprehensible manner. One must not overestimate a project's emission reductions. The baseline – or quantity of emissions that would have been generated without the project – must be calculated as precisely as possible and by all means cautiously/conservatively.



Demonstration of the new, low-soot Basa Magogo method in kilns in metropolitan Johannesburg, South Africa



Installation of a photovoltaic panel in the Tumkur district of the Indian state of Karnataka

#### **(4) Ensure additionality**

Additionality is present if a project is realized exclusively thanks to funding provided by an offsetting mechanism. A project that would have been realized anyway does not reduce emissions. On the contrary, emissions increase globally instead of remaining constant. After all, such a project was not initiated to offset the future emission of greenhouse gases, but rather improperly categorized after the fact.

#### **(5) Preclude carbon leakage**

The risk of carbon leakage must be obviated. In other words, execution of a project must not result in more emissions elsewhere because of, for instance, longer transport routes.

### **B. Klima-Kollekte projects:**

#### **Ensure monitoring and transparency**

##### **(1) Verification and certification**

Independent third parties must verify that emission reductions are properly calculated and that projects carried out are audited.

## **(2) Registration and retirement**

Emission-reduction certificates that have been issued must be registered. Once they have been sold, certificates must be entered in a recognised registry and then removed from circulation, or retired, to avoid double counting.

## **(3) Guarantee reductions in emissions**

Emission reductions must not be associated with a given project, which might not be realized as planned or not at all. If a project is not executed, then another project must reduce emissions.

## **(4) Ensure transparency**

This refers to the calculation of greenhouse gases that are offset, including all corresponding assumptions. Transparency also concerns the implementation of climate-protection projects and the quantification of emissions thereby reduced. Information regarding the money invested by carbon-offset providers should likewise be transparent. Project documentation should be published in its entirety.

## **(5) Avoid double counting**

Emission reductions achieved via the voluntary market can be counted only once. They cannot, however, be applied to a project country's emission-reduction obligations in the scope of international climate policy.

## Time horizons

Projects that entail afforestation, reforestation or the prevention of deforestation last a very long time – perhaps more than 100 years. Such endeavours are consequently problematic concerning carbon-offset projects. Our projects last between 10 and 21 years.

## Quality certified as per Gold Standard

**Klima-Kollekte** projects meet Gold Standard requirements for certification. Klima-Kollekte does so because Gold Standard requirements are more stringent than those stipulated by the Voluntary Carbon Standard (VCS) or the Duke Standard regarding environmental compatibility, societal considerations and human rights. Projects that reduce annual CO<sub>2</sub> emissions by less than 5,000 metric tons of CO<sub>2</sub> are executed in accordance with the Gold Standard.



## How much does it cost to offset one metric ton of CO<sub>2</sub>?

The price of offsetting one metric ton of CO<sub>2</sub> depends on the costs incurred during completion of a carbon-offset project and the costs of (independently) verifying a reduction in emissions. In addition, costs are determined by the scope of a project, the technologies used and the country in which a project is carried out. Prices are furthermore influenced by market trading of certificates.

Like other carbon-offset providers, **Klima-Kollekte** charges an average of twenty-three euros (€23) to offset one metric ton of CO<sub>2</sub> – including administrative costs. Of that amount, our administrative office commits 2.50 euros to its publicity measures and administrative work. In addition, 1.50 euros from every certificate associated with a large project – i.e., a reduction in annual CO<sub>2</sub> emissions of more than 5,000 metric tons – are spent on small and very small Klima-Kollekte projects. Project-specific emission reductions are calculated on the basis of various factors – for 1,000 solar lamps, for instance. Methods used must be recognized by the CDM or Gold Standard. Independent assessors verify compliance. Long-term monitoring ensures that projects are carried out, emissions are in fact reduced and sustainable development is fostered.

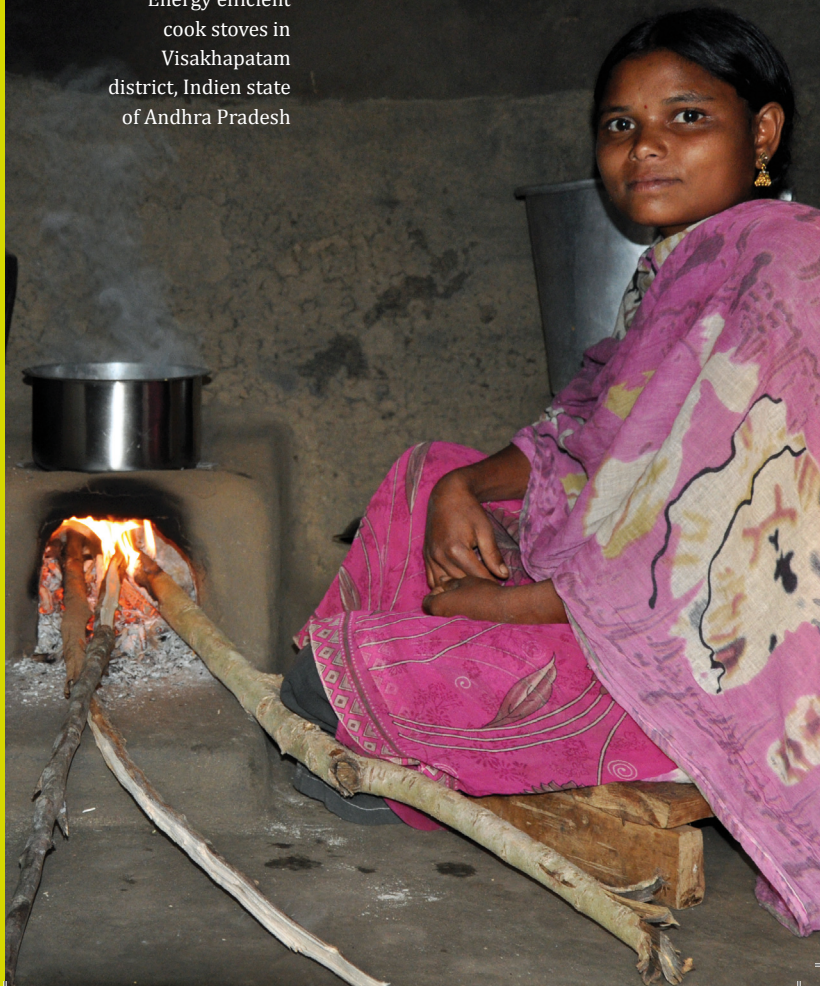
## **Committed to combating climate change – but why?**

Ocean levels worldwide rose by some 17 centimetres on average during the 20th century. Oceans have been swallowing land due to rising water temperatures as well as melting glaciers, ice caps and ice sheets. Since the 1970s, scientists have observed that droughts have become more intense and longer in duration. But they have also noted that heavy precipitation and tropical storms have become more frequent.

Germany was in sixth place in terms of absolute CO<sub>2</sub> emissions in 2013. All in all, the top ten countries cause nearly 70% of all emissions worldwide. For this reason, these ten countries have a particular obligation to reduce their CO<sub>2</sub> footprint.



Energy efficient  
cook stoves in  
Visakhapatnam  
district, Indian state  
of Andhra Pradesh





## **Our planet will be warmer in 2100**

Compared to the climate between 1980 and 1999, worldwide temperatures are expected to rise between 1.5 °C and 4 °C by 2100 – depending on the climate-policy endeavours and scenario in question. Warming will not be uniform across the globe; it will instead primarily affect land masses. Scientists also anticipate large differences from region to region. The extent of global warming will depend largely on the quantities of greenhouse gases emitted by the mid-21st century. Climate change threatens dramatic consequences – especially if the worldwide average temperature increases by more than 2 °C compared to the pre-industrial average.

The International Panel on Climate Change (IPCC) has stated that human activities emitted some 545 metric gigatons of CO<sub>2</sub> into the atmosphere between 1750, when industrialization began in North America, and 2011. The IPCC also states that some 44% of said CO<sub>2</sub> has remained in the Earth's atmosphere. Oceans, soil and vegetation absorbed only 56% of the CO<sub>2</sub>.

## **Impact on humanity and the environment**

Environmental, economic and societal impacts on people could worsen dramatically. It is expected that the following phenomena will worsen: water shortages and crop failures as well as health problems caused by heat stress, malnutrition, diarrhoea and infectious diseases. Scientists also predict that biodiversity will suffer and entire wetlands will disappear. Compounded by damage caused by floods and storms, ecosystems and societies alike will be overwhelmed. Scientists fear that relatively minor climatic changes result in tipping points. Whenever these critical thresholds are exceeded, the climate can change considerably and even abruptly. It will prove extremely challenging for people and the environment to adapt.

## **Southern hemisphere will bear the brunt**

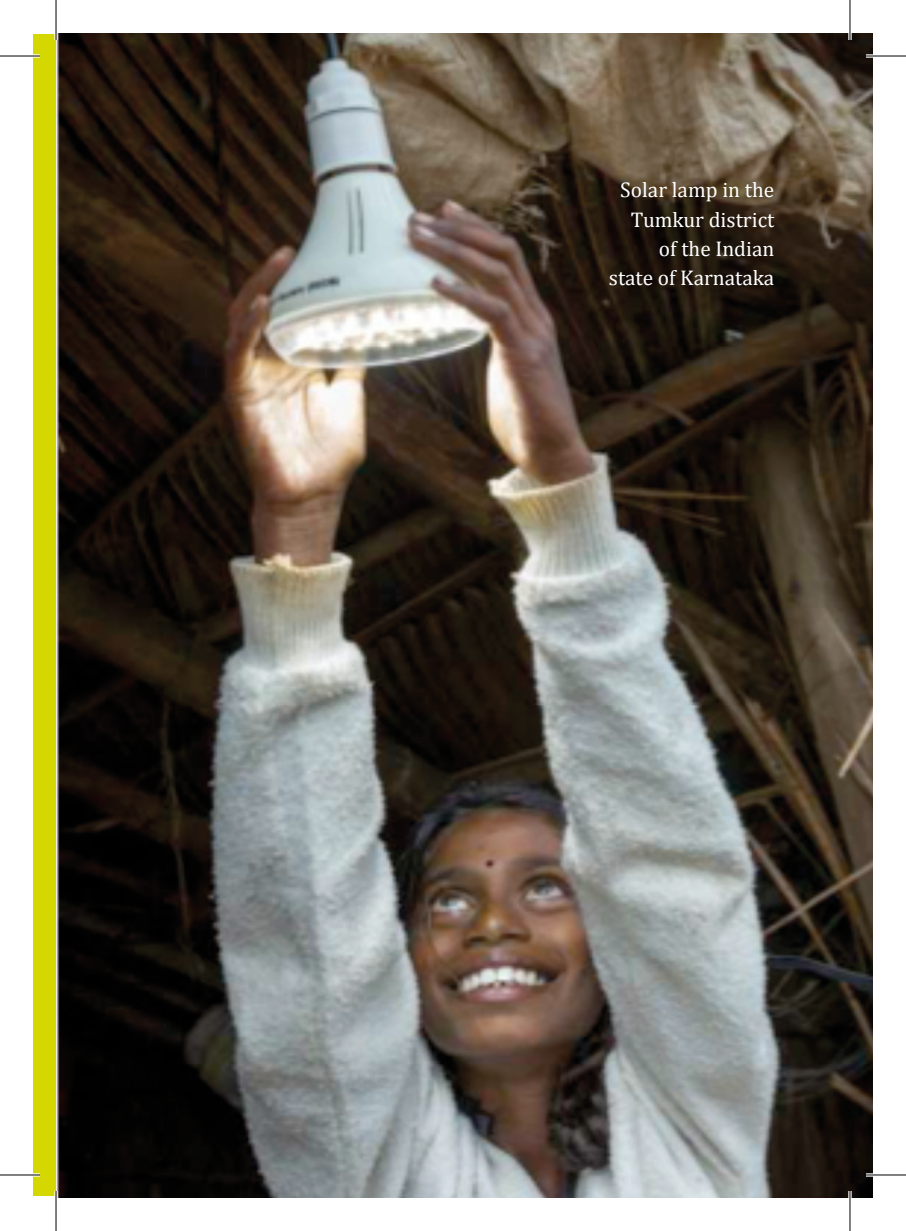
Climate change will certainly have a considerable impact on people in disadvantaged countries in the southern hemisphere. One example is the island country of Tuvalu, which lies just barely above sea level in the Pacific. Prone to flooding and loss of land, another example is Bangladesh – home to 150 million people as of 2014. People in both countries are relatively ill-equipped to adapt to climate change. Owing to poverty, many of them have to rely heavily on resources such as local water supplies and food.

Although people in industrialized countries are primarily responsible for anthropogenic climate change, it is people in developing countries who are already suffering the consequences.

Experts have forecast, for example, a geographical shift in fish stocks. This would mean that people near the equator would catch 50% less fish. This could prove devastating, as fishing is a key economic sector in many island countries.

### **Impacts in industrialized countries**

Climate change will by all means considerably impact industrialized countries, as well. Central Europe and Eastern Europe must prepare for water shortages, declining forest growth and more frequent peat fires as well as increasing health risks due to heat waves. Some regions might benefit from the geographical shifting of agricultural zones. Vineyards could thrive farther north than is now possible, for example. Storms featuring very heavy precipitation have already become more frequent in North America and Northern Europe.

A young girl with a bindi on her forehead, wearing a white sweater, is smiling and holding up a glowing solar lamp. The lamp is a white, cone-shaped device with a grid of small LEDs at the bottom. The background is a dark, textured wall made of woven bamboo or similar natural materials. The lighting is warm, emanating from the lamp. The text is positioned in the upper right corner of the image.

Solar lamp in the  
Tumkur district  
of the Indian  
state of Karnataka

## CO<sub>2</sub>-offsetting fund operated by churches

**Klima-Kollekte** is a CO<sub>2</sub>-offsetting fund operated by Christian churches in Germany and other European countries. **Klima-Kollekte** provides opportunities for offsetting the unavoidable emission of greenhouse gases. It accomplishes this via projects with the following partner organisations: MISEREOR, Bread for the World – Protestant Development Service, the Evangelical Church in Germany, the Protestant Institute for Interdisciplinary Research and Nordkirche Weltweit.

**MISEREOR**  
IHR HILFSWERK

**Brot**  
für die Welt

Brot für die Welt –  
Evangelischer  
Entwicklungsdienst

**EKD**

Evangelische Kirche  
in Deutschland



F·E·S·T



nordkirche weltweit  
ZENTRUM FÜR MISSION UND ÖKUMENE

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Climate-protection projects overseen by Christian organisations or their partners are carried out in developing and emerging countries.



Klima-Kollekte staff

## Who can offset?

Anybody can purchase carbon offsets from **Klima-Kollekte**. Even though we interact primarily with Christian entities, we eagerly work with all interested parties. Examples of carbon offsetting include CO<sub>2</sub> emissions from planes that holidaymakers fly on, intercultural exchange trips or your staff's business trips. **Klima-Kollekte** can also offset pollutants emitted on account of events such as synods, conferences and church congresses.

## Klima-Kollekte services

Our website at **www.klima-kollekte.de** features a CO<sub>2</sub> calculator. You can use it to determine how much greenhouse gas is emitted during a flight, for example, and then offset it. You will then receive an invoice that you can print. Alternatively, you can pay directly via the online system of the *Bank fuer Kirche und Diakonie*. You can also buy carbon offsets without using the CO<sub>2</sub> calculator – if, for instance, you already know what your CO<sub>2</sub> footprint is because an environmental management specialist at your organisation has calculated it for you. In this case, you can use the **Direktkompensation tool** on our website. You will pay a certain amount based on the calculated quantity of greenhouse-gas emissions. **Klima-Kollekte** will then invest your money in one of its partner's climate-protection projects.



**Klima-Kollekte** can also lend you its **travelling exhibition** of eight roll-up banners free of charge. Topics include climate change, obligations of industrialized countries and **Klima-Kollekte** projects. Our exhibition also includes a pair of wooden scales people can use to weigh their mobility-related emissions. Upon request, we will gladly organize climate **workshops** for adolescents and adults. Workshop participants can interactively explore opportunities for avoiding and reducing greenhouse-gas emissions. Last but not least, we also offer a **religious services brochure**. Available free of charge, it provides advice on planning climate-friendly religious services.

CO <sub>2</sub> Calculator ▾
Heating
Electricity
Paper
Car
Bus and train
Plane
Events



## Climate glossary

### Cap and trade (emissions trading)

Reduction in the allocation of certificates per country within certain periods of time. Ultimately, a given country's governmental bodies will allocate certificates to the industries in question. Companies may buy and sell permits as needed. A market participant that requires more certificates can purchase some from other market participants.

### CDM

Clean Development Mechanism. Implemented as part of the Kyoto Protocol, this procedure allows companies in industrialized countries to meet their emissions-reduction commitments by financing projects in developing countries. Said companies can thus earn carbon credits known as Certified Emission Reductions, or CERs. As such, the CDM promotes funding and the transfer of technology as well as sustainable development processes.

### CERs

Certified Emission Reductions. Certificates for emission reductions accomplished via climate-protection projects. Projects must be certified as per the CDM standard and be listed in the registry of the UN's CDM Executive Board. Projects must furthermore appear in the registry of the emissions-trading authority in that country in which a company will purchase CERs.

### Gold Standard

Introduced in 2006, this standard facilitates both voluntary and mandatory carbon offsetting. Its projects aim to reduce greenhouse gases while encouraging sustainable development in various countries. [www.goldstandard.org](http://www.goldstandard.org)



## JI

Joint Implementation. Stipulated in the Kyoto Protocol, this procedure allows an industrialized country to invest in an emission-reduction project in some other industrialized country. As such, JI promotes funding and the transfer of technology as well as sustainable development processes.

## Climate-neutral vs. Climate-friendly

"Climate-neutral emissions" refer to emissions that occur during production processes, performance of a service such as parcel delivery, or the heating of rooms. These emissions are then offset, or made neutral, by means of a climate-protection project elsewhere. The term "climate-neutral" implies that neither print products nor heating have any impact on climate. Klima-Kollekte prefers the term "climate-friendly". After all, emissions are not prevented but have instead already occurred. They are then offset.

## VERs

Verified Emission Reductions: certificates accomplished via climate-protection projects and traded on the voluntary market. VERs must be approved by a given country's emissions-trading authority. These certificates are bought and sold exclusively on the voluntary market because they are not certified as per the CDM standard.





Please contact us for more information about our services:

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#### **Publisher:**

Klima-Kollekte – Kirchlicher Kompensationsfonds gGmbH

**Texts:** Klima-Kollekte

**Translation:** Brian Worthen

**Fotos:** Klima-Kollekte (unless otherwise stated)

Printed on 100% recycled paper

*Emissions amounting to 150 kg and generated due to paper and printing will be offset via our projects.*

March 2015; print run: 1,500 copies

