



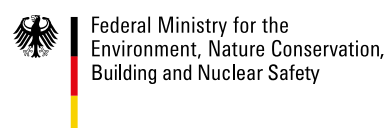
# Climate Protection in China

Sino-German Cooperation  
as Part of the International Climate Initiative (IKI)

Implemented by

**giz** Deutsche Gesellschaft  
für Internationale  
Zusammenarbeit (GIZ) GmbH

On behalf of



of the Federal Republic of Germany

*“We should build an ecosystem that puts Mother Nature and green development first –  
After all, we are all a part of nature.”*

This appeal from Chinese President Xi Jinping at the 2015 UN Sustainable Development Summit emphasises China’s commitment to limit climate change and to promote environmental protection. Both of these issues are among the greatest global challenges that we face today. With almost a fifth of the global population and close to one quarter in worldwide greenhouse gas emissions, China plays a pivotal role in tackling these challenges. In recent years, the Chinese government has increasingly recognised the detrimental effects on nature and on our global climate that are caused by its rapid economic growth. Concepts such as circular economy, ecological civilization, or national new type urbanisation promoted by the Chinese government demonstrate its shift towards what President Xi Jinping recently summarised as pursuing “green, low-carbon development”.

For eight years, the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) has been promoting and funding projects in the field of climate change and biodiversity through the International Climate Initiative (IKI) in China and many other countries. Within the framework of the comprehensive Sino-German strategic partnership, nine bilateral, one regional and nine global projects funded by the German IKI are currently being implemented in cooperation with Chinese partners.

On behalf of BMUB, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH supports the annual bilateral Climate Working Group Meeting chaired by BMUB and the Chinese National Development and Reform Commission (NDRC). Among other purposes, this meeting functions as an overarching coordination mechanism to reach agreement on and to review existing bilateral projects. Recognising China’s increasing share in global greenhouse gas emissions, mitigation lies at the core of the majority of bilateral projects, which are implemented by GIZ. The bilateral projects follow the strategic discussions between both sides and highlight the specific topics of interest: from integrated energy concepts or transport-related greenhouse gas emission monitoring schemes in cities, through advising on low-carbon development plans and land use strategies for individual provinces. Such advice also includes the support for the introduction of a national emissions trading scheme, the reform of the regulatory framework for the introduction of electric vehicles as well as advice on important topics of the environmental dialogue such as exchange on emissions permit systems for industry and incentive schemes to stimulate sustainable production and consumption patterns. In all the projects GIZ works with governmental as well as non-governmental organisations on the ground and in the centres of national decision making.

Similarly, global projects funded through the IKI in China – implemented by the United Nations Development Programme, the World Bank, the Wuppertal Institute and GIZ – cover a wide range of issues such as energy efficiency, environmental dialogues and green economy but oftentimes have a stronger focus on sharing experience and knowledge amongst a broad range of developing countries and emerging economies.

Bilateral or global – common to all projects is that their success critically depends on a strong cooperation between the participating partners. We thus wish to thank all of the partners involved – governmental organisations, private sector stakeholders, civil society partners, as well as the academic community – for their effective and reliable collaboration over the past years. We look forward to further strengthening our joint efforts for sustainable development in China funded through the IKI.

This brochure shall give an overview on the climate protection related engagement of BMUB in China, the bilateral projects and selected global projects with significant impact in China.



Oliver Auge

Country Director, GIZ China

<b>Foreword</b> .....	<b>2</b>
<b>Introduction</b> .....	<b>6</b>
Financing Climate Protection .....	6
Germany's Role in International Climate Change Negotiations .....	6
Germany's Financial Commitment .....	7
About the International Climate Initiative (IKI) .....	7
The International Climate Initiative in China .....	7
NAMA Facility .....	8
Facing Climate Change in China .....	9
<b>BMUB Projects in China Implemented by GIZ</b> .....	<b>13</b>
Sino-German Climate Partnership and Cooperation on Renewable Energies .....	14
Capacity Building for Emissions Trading Schemes (ETS) in China .....	17
Electro-Mobility and Climate Protection .....	19
Implementation of Complex Low-Carbon Compound Projects in City Networks in the Province of Jiangsu .....	21
Leadership Training on Environmental and Climate Issues .....	23
Low-Carbon Land Use .....	25
Qualification of Key Actors on Energy Efficiency in the Building Sector .....	27
Sino-German Cooperation on Low-carbon Transport .....	30
Sino-German Environmental Partnership .....	32
Strategic Environmental Dialogues .....	34
<b>BMUB Projects in China implemented by Other International Organizations</b> .....	<b>37</b>
Energy Subsidy Reform Initiative .....	38
Enhancing Low-Carbon Development by Greening the Economy in Cooperation With the Partnership for Action on Green Economy (PAGE) .....	40
Bridging the Information Gap on Energy Efficiency in Buildings (bigEE) .....	42
Low Emission Capacity Building Programme (LECB) .....	44
Partnership for Market Readiness (PMR) .....	47

# List of Abbreviations

BMUB	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
CAG	Chinese Academy of Governance
CCICED	China Council for International Cooperation on Environment and Development
CNCCP	China's National Climate Change Programme
CNREC	China National Renewable Energy Center
CNY	Chinese Yuan
COP	Conference of the Parties
COP 21	21st Conference of the Parties held in Paris
CSTC	Chinese Science Technology and Industrialisation Development Centre
CTCSPMO	Centre for Senior Personnel Management Officials
EDC	Environmental Development Center of the Ministry of Environmental Protection of the People's Republic of China
EGSS	Environment Goods and Services Sector
ESMAP	Energy Sector Management Assistance Programme
ETS	Emissions Trading System
EUR	Euro
FYP	Five-Year Plan
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
IKI	International Climate Initiative
INDC	Intended Nationally Determined Contribution
JDRC	Jiangsu's Development and Reform Commission
LECB	Low Emission Capacity Building Programme
MEP	Ministry of Environmental Protection of the People's Republic of China
MLR	Ministry of Land and Resources of the People's Republic of China
MoF	Ministry of Finance of the People's Republic of China
MoHURD	Ministry of Housing and Urban-Rural Development of the People's Republic of China
MoST	Ministry of Science and Technology of the People's Republic of China
MoT	Ministry of Transport of the People's Republic of China
MRP	Market Readiness Proposal
MRV	Measuring, Reporting and Verification
NAMA	Nationally Appropriate Mitigation Actions
NDRC	National Development and Reform Commission of the People's Republic of China
PMR	Partnership for Market Readiness
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SFA	State Forestry Administration of the People's Republic of China
UBA	German Federal Environment Agency
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organisation
UNITAR	United Nations Institut for Training and Research
UNFCCC	United Nations Framework Convention on Climate Change
USD	US Dollar

A new robust and legally binding climate change agreement, applicable to all countries, has been decided upon at the Conference of the Parties (COP21) in Paris in December 2015. The Paris Agreement, to come into force by 2020, lays out an ambitious and universal path for reducing emissions in order to keep the global average temperature rise well below 2°C and pursues efforts to hold the temperature increase at 1.5°C. In addition, the new deal puts an end to the differentiation between developed and developing countries. Under the new framework, each country is obliged to publish its Nationally Determined Contributions (NDCs) every five years. This approach marks a fundamental shift in international climate negotiations and demonstrates the mutual effort of each country to counter climate change according to its national situation and possibilities. The NDCs will also be subject to international review, which will account for a gradual increase in ambition. The COP21 therefore reached a historical landmark agreement that builds a political momentum to send out a strong message to both private and public decision makers to redirect their investment strategies towards the establishment of climate resilient, low-carbon economies.

## FINANCING CLIMATE PROTECTION

Of utmost importance in international climate governance is the mobilisation of up-scaled climate finance to shift economies towards low-carbon growth. In the context of the Paris Agreement, developed countries reaffirmed their commitment to mobilise USD 100 billion per year by 2020 and to finance meaningful mitigation actions and transparency on implementation in developing countries through 2025. A central pillar of the evolving climate finance framework is the Green Climate Fund (GCF), entrusted with the operation of the Financial Mechanism of the UNFCCC, which approved funding of the first projects last autumn. However, multilateral public climate finance alone will not suffice to develop an adequate response to climate change, as the overall investments needed are much higher than the international climate finance landscape provides. Therefore, domestic and bilateral funding from public and, above all, private sources will have to play an important role in investments for a sustainable, low-carbon, climate-resilient development strategy. In order to shift private investments into a low-carbon and climate-resilient transition, in line with the 1.5°C limit, countries will have to put in place a conducive framework of policies and regulations.

## GERMANY'S ROLE IN INTERNATIONAL CLIMATE CHANGE NEGOTIATIONS

As part of the common strategy of the European Union, the German government is actively engaged in the international climate negotiation process and related dialogues. Domestically, it has set an ambitious target of reducing its greenhouse gas (GHG) emissions by 40% by 2020 and 80-95% by 2050, which is below 1990 levels. The German “Energiewende” (energy transition) sets out an example for a transformative change towards a low-carbon economy. As an active EU member, Germany is dedicated to the ambitious Paris Agreement with mitigation commitments applicable to all parties to stay below a global warming of 1.5°C, above pre-industrial levels. In this context, the EU and its member states have set themselves the target of achieving 40% reduction in GHG emissions by 2030.

## GERMANY'S FINANCIAL COMMITMENT

Germany is scaling up its support for mitigation and adaptation efforts of developing countries and is delivering on its fair share of the USD 100 billion per year by 2020 commitment, as confirmed by developed countries in Paris. In this context, the German Chancellor, Angela Merkel, announced at the Petersberg Climate Dialogue in May 2015, that by 2020 Germany's climate finance will be double that of its contributions in 2014. In 2013, Germany was the second largest provider of climate finance, providing in total 3.5 billion EUR, which included 2 billion EUR in budgetary funds and 1.5 billion EUR in mobilised public funds by the KfW Development Bank and the Deutsche Investitions- und Entwicklungsgesellschaft mbH (DEG).

## ABOUT THE INTERNATIONAL CLIMATE INITIATIVE (IKI)

Since 2008, an increasing share of climate finance has been provided by the IKI of the BMUB. To date, more than 500 climate and biodiversity projects have been funded by the IKI in selected partner countries. The IKI focuses on four funding areas: climate change mitigation through GHG reductions, adaptation to the consequences of climate change, conservation of natural carbon sinks, and protection of biodiversity. One important focus is to support partner countries in meeting their obligations under the United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD). The projects look for innovative solutions to the challenges and develop new political, economic and regulatory approaches, as well as technological options and co-operation models.

## THE INTERNATIONAL CLIMATE INITIATIVE IN CHINA

The IKI-projects in China are implemented by various organisations. Most bilateral projects are implemented by GIZ. Other implementation partners are the KfW, the Association of German Chambers of Commerce and Industry (DIHK) as well as the DEG. Multilateral organisations, such as United Nations organisations and multilateral development banks, NGOs, research institutes, and foundations are also involved. Support is also given by private stakeholders through capacity development and through the transfer of innovative technologies. Other regional and multilateral projects are implemented by German research institutes, non-profit organisations and private sector enterprises.

In 2009, the Sino-German co-operation on climate protection was based on an agreement between the two governments on the cooperation on combatting climate change, signed by the NDRC and the BMUB. Within this framework, the Sino-German Climate Partnership was set up and a working group supports the exchange of experience of combatting climate change through national strategies. Topics are strategies on low carbon development, emissions trading and fiscal measures as well as further areas of common interest. Since 2010, the Working Group on Climate Change has met annually as a platform for bilateral exchange and also functions as a coordinating mechanism for the bilateral cooperation.

On the Chinese side the partners of the projects are the ministries in charge of climate and environmental protection, such as the NDRC, the Ministry of Environmental Protection (MEP), the Ministry of Science and Technology (MoST), the Ministry of Housing and Urban-Rural Development (MoHURD), the Ministry of Transport (MoT), the Ministry of Commerce (MofCOM). Further stakeholders are the Ministry of Land and Resources (MLR) and the State Forestry Administration (SFA) as well as research institutes and other relevant institutions that are involved in specific projects.

BMUB attaches great importance to the development of innovative and replicable approaches that achieve results beyond individual projects and are thus transferable. In China, most projects support Chinese partners on GHG reduction and the development of a climate-friendly economy. Areas of focus are energy efficiency, renewable energy, emission trading systems (ETS), low-carbon transport, resource-conservation, and low-carbon production and consumption patterns. Other multilateral projects work on conserving biological diversity or conserving natural carbon sinks with a focus on reducing emissions from deforestation and forest degradation (i.e. REDD+). Through the exchange of experiences, trainings and best-practice examples, BMUB supports relevant Chinese stakeholders, ministries and other institutions in improving policy conditions and enhancing the capacities of key actors. The cooperation in the field of adaptation supports the key Chinese actors in developing national, integrative strategies on adaptation and in developing funding mechanisms (i.e. insurance derivatives).

A central pillar for the development of the Sino-German cooperation on climate change is sustainable urbanisation. By 2030, 70% of China's population will live in cities and 80% of China's fossil fuels, industrial production, transportation or heating supply will be consumed by the more than 160 cities with over a million inhabitants. Today, already 70% of China's GHG emissions are produced by cities. In anticipation of these pressing infrastructural challenges, the Chinese government has issued the "National New-Type Urbanization Plan (2014-2020)". In order to support China's efforts in sustainable urbanisation, Angela Merkel and China's Prime Minister Li Keqiang agreed on an Urbanisation Partnership in 2013. A Memorandum of Understanding between BMUB and MoHURD on implementing the Sino-German Urbanisation Partnership forms the basis for the cooperation on a new IKI project that will support China's urbanisation strategies on climate resilient, integrated and sustainable urban development and aims to lower urban-related GHG emissions in Chinese cities prospectively. In close relations with MoHURD, the dialogue-oriented project will facilitate capacities for German and Chinese policy-makers by focussing on topics of green and smart city development, energy efficient buildings, renewable energy in cities, adaptation to climate change, low-carbon transportation or urban biodiversity.

## NAMA FACILITY

In addition to its engagement via the IKI, Germany has also been among the pioneers to provide finance for the implementation of Nationally Appropriate Mitigation Actions (NAMAs). BMUB, the Department of Energy and Climate Change (DECC) of the United Kingdom, the Danish Ministry of Climate, Energy and Building (MCEB) and the European Commission jointly provide finance for ambitious climate change mitigation measures in the framework of the NAMA Facility. NAMAs can vary from specific local actions to broad national policy initiatives. However, they are all country-driven and based on the country's specific needs and characteristics. In 2013 and 2014, the NAMA Facility provided a total of EUR 120 million of



funding to developing countries. As the first of its kind, it provides important lessons-learned in financing transformative climate change mitigation measures. China is also eligible to receive funding for implementing NAMAs across the nation. At COP21, the appraisal phase of the NAMA support project “China Integrated Waste Management” has been announced. Building on current Chinese plans for GHG emission reduction, circular economy, urbanisation and waste management, the NAMA Support Project (NSP) will demonstrate in three pilot cities how integrated waste management and waste-to-energy systems can be operated as profitable business outfits. The project aims at capitalising on significant Chinese investments going into the waste sector by introducing best available practices for integrated waste management.

## FACING CLIMATE CHANGE IN CHINA

Global environmental challenges, such as climate change, cannot be solved without China. Since 2010, China has been the major carbon dioxide emitter and at the same time suffers greatly from the impacts of climate change and the ecological damage caused by several decades of rapid and unsustainable economic growth. The exploitation of the environment and nature has already had negative effects on the further economic and social development. The annual costs incurred as a result of damage to the environment and the climate in China amount to more than USD 230 billion - or 3.5% of China's gross domestic product (GDP). The Chinese government is aware of this challenge and sets the course towards more sustainable growth as well as towards low-carbon development and an ecological civilization. Only with China as a close partner, can global emissions be successfully reduced. In line with its pioneering role in environmental and climate politics, Germany is one of China's most important partners in making steady progress in environmental and climate protection, not only for the global benefit but also in the bilateral interest of both countries. Given the rapid economic development and its regional influence, today China often serves as a role model for the cooperation with emerging Asian nations and countries in transition. That reputation has been recently underlined when President Xi Jinping announced to establish two South-South Cooperation funds, equipped with USD 5.1 billion, dedicated for helping developing countries to fight climate change (USD 3.1 billion) and to implement the post-2015 Development Agenda (USD 2.0 billion). This development is also proof of China's ambitious record in domestic climate change measures and legislation processes.

In 2007, China's National Climate Change Programme (CNCCP) was established. The CNCCP is a national plan which focusses on mitigation and adaptation. The plan includes various measures on environmental protection and climate change actions in order to stabilise and even halt emission growth, respectively. The CNCCP was continued by addressing climate change for the first time ever in China's 12th Five-Year Plan (FYP). The 12th FYP from 2011 to 2015 aimed for a gradual decrease in fossil fuel use and increases in energy savings and efficiency: The energy consumption shall decrease by 16% per unit of GDP (compared to the 2010 level) and carbon dioxide emissions by 17% per unit of GDP (compared to the 2010 level). By 2020, the proportion of forests shall be enlarged by 23% (from a level of 20.4% in 2010) and the proportion of growing stock by 15 billion cubic meters. In addition, seven pilot ETS schemes were launched in Chinese regions and cities to test various designs. The IKI has been providing intensive support to prepare for the implementation of these pilot schemes. An ETS project on Capacity Development is working together with local authorities and businesses at the regional level in Shenzhen, Guangdong and Shanghai, as well as at national level with the NDRC. As ETS has proven to be a cost-effective policy

instrument in mitigate GHG emissions, the government intends to introduce a national ETS in 2017 as the flagship instrument in China's climate policy mix.

The 13th FYP from 2016-2020 builds upon the momentum set in the 12th FYP, which has China set to exceed the high-end of their goal of 40-45% carbon intensity reduction by 2020. The anticipated comprehensive climate change law, which is promised to be released within the near future, would provide a necessary legal basis to curb emissions. Both of these components are critical for China to meet their Nationally Determined Contribution, released in the run-up to COP21 in Paris. In the NDC, China internationally commits to:

- Achieve the carbon dioxide emissions peak around 2030 and to raise capacities to reach this peak earlier.
- Lower carbon dioxide emissions per unit of GDP by 60% to 65% from the 2005 level.
- Increase the share of non-fossil fuels in the primary energy consumption to around 20%.
- Increase the forest stock volume by around 4.5 billion cubic meters compared to the 2005 level.

Current figures indicate that China's efforts in tackling climate change are already starting to have measurable effects: According to China's NDC, in 2014 the CO<sub>2</sub> emission level per unit of GDP was 33.8% lower than the 2005 level. Furthermore, China's latest economic data for 2015 implies that China's CO<sub>2</sub> emissions from fossil fuel consumption have fallen around 3%. These are promising results that show China's deep concern to act accountably in addressing climate change challenges. BMUB's IKI closely cooperates with the Chinese government to further promote China's efforts in achieving their ambitious climate targets.

In conclusion, China regards the battle against climate change as a major opportunity to accelerate its economic restructuring and achieve sustainable development. The government seeks to make more powerful moves in greening the economy, improving the industrial structure, promoting low-carbon energy consumption and encouraging trading with emission reduction certificates. Moreover, China will continue to proactively adapt to climate change by enhancing mechanisms and capacities to effectively defend against climate change risks in key areas such as agriculture, forestry and water resources, as well as in cities, coastal and ecologically vulnerable areas. China also progressively strengthens its early warning and emergency response systems and disaster prevention and reduction mechanisms.

For additional information on the BMUB IKI projects, please visit:

<http://www.international-climate-initiative.com/en>





# BMUB Projects in China Implemented by GIZ

# Sino-German Climate Partnership and Cooperation on Renewable Energies

Project title:	Sino-German Climate Partnership and Cooperation on Renewable Energies
Commissioned by:	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Lead executing agency:	National Development and Reform Commission (NDRC) of the People's Republic of China, National Energy Administration (NEA) of the People's Republic of China
Overall term:	2014 to 2017
Keywords:	Dialogue on climate change, low-carbon development, climate action plans, capacity development, renewable energy, energy policy, energy transition, city energy concept

## CONTEXT

In January 2009, the German and Chinese Governments agreed on strengthening the bilateral cooperation on climate protection. A high-level bilateral working group on climate change has been established as a central instrument of this cooperation. Since 2010, various ministries and subsidiary institutions of both countries have been taking part in annual meetings of the bilateral working group in order to exchange experiences in climate change mitigation strategies and bilateral cooperation projects. The dialogue established during project phase I (2011 to 2014) is deepened in project phase II (2014 to 2017) and supplemented by a component focusing on the promotion of renewable energies – a vital pillar of emissions mitigation measures in China and worldwide.

## OBJECTIVE

The project aims to strengthen the Sino-German cooperation on climate protection and China's capacity to develop a low-carbon economy based on renewable energy sources. It promotes the development and implementation of climate protection strategies and measures, including the expansion of renewable energies, on the national as well as the local level.

## APPROACH

The project supports the established political and strategic dialogue on climate protection and intensifies the exchange on renewable energies.

Specific topics for the Sino-German experience exchange are defined by the bilateral working group on climate change and are followed up by the Sino-German Climate Partnership (Project Component 1). As such, the project component addresses demand-oriented issues (e.g. climate financing, establishment of low-carbon communities, climate governance, climate legislation, new market mechanisms), which arose during the climate working group, and are in the interests of both sides, and allows for an initial exchange of experiences through studies and dialogue events. Ideas for new projects derived from this exchange are brought back to the climate working group. Besides, targeted trainings support the political dialogue and strengthen, in particular, the implementation of climate protection measures at provincial and local levels.

The Sino-German Cooperation on Renewable Energies (Project Component 2) serves to intensify the political dialogue with China's National Energy Administration (NEA) on policies to promote the mitigation



of greenhouse gas (GHG) emissions through renewable energy deployment and system integration. Together with its implementation partner, the China National Renewable Energy Center (CNREC), the project

supports the development of the legal and regulatory framework for the deployment and efficient use of renewable energies on the national and local level. The component facilitates the transition towards a low-carbon energy system on a local level through the development of exemplary integrated energy concepts together with three Sino-German New Energy Demonstration Cities drawing on German best practices. The selected pilot cities aim to raise the share of renewable energies in energy consumption with the help of a long-term vision for their future energy system (including ambitious targets for renewable energies), a holistic planning approach and an action plan, including practicable measures for implementation and monitoring of results. In addition, a web-based dialogue and information platform serves to facilitate the exchange of best practices between the Chinese New Energy Cities,



domestically, and with international peers. The overall project serves as a platform to integrate the Sino-German cooperation on climate and renewable energies into a coherent framework facilitating coordination and leveraging of synergies in implementation. It also aims at strengthening China's involvement in forums for multilateral exchange. Experiences gained within the framework of the Sino-German cooperation are rehashed and further disseminated to relevant stakeholders. Additionally, experiences are incorporated into the international debate.

## RESULTS

As a focal point for communication, component 1 successfully supports the climate protection dialogue and continuously contributes to intensifying the exchange of experiences between Germany and China. The component coordinates the preparation, implementation and follow-up of the annual meetings of the bilateral working group. During these meetings, both sides exchange on current climate protection policies and international climate negotiation positions. They evaluate the Sino-German cooperation projects of the IKI and agree on topics and project ideas for future cooperation.

Without the implementation of climate-friendly measures at the local level (e.g. in cities), climate protection can not be realized. That is why the project organised several dialogue formats in which governmental officials, scientists, legal experts and NGOs discussed inter alia institutional and structural aspects of climate change. An ongoing exchange of experience on public participation in climate protection and a discussion on the Chinese climate legislation has been established. Recently, the project provided international perspectives and expertise to the ongoing establishment of the Chinese South-South Cooperation Fund on climate change.

Chinese representatives at city and provincial levels from Jiangxi Province have been familiarised with institutional framework conditions and models of the municipal climate protection in Germany and Europe. Complementary training measures will follow in the future in order to support the implementation of specific climate action plans at local level and to strengthen local climate governance capacities.

Component 2 supports the bilateral policy dialogue on national level policies that drive local-level action to mitigate emissions in order to strengthen the ability of Chinese cities to act on climate change. Three Sino-German New Energy

Demonstration Cities receive technical and methodological support in the development of exemplary sustainable energy concepts, which will serve as a model for other Chinese cities to replicate.

The status quo with regard to energy supply and demand is being assessed. Subsequently, energy and emissions balances are created for each of the demonstration cities, while the potential for renewable energy and energy efficiency development is analysed. Following the elaboration of scenarios for different pathways for the future development of the cities' energy systems action plans with recommendations for policies, regulations and projects are drafted and discussed with relevant stakeholders. As a final step, for each city an integrated municipal energy concept adapted to the Chinese circumstances will be published. Along with GIZ and CNREC local Chinese consultants as well as a consortium of renowned German Fraunhofer Institutes, including the Fraunhofer Institute for Wind Energy and Energy System Technology (IWES), Building Physics (IBP) and Solar Energy Systems (ISE), accompany the process of energy concept development with methodological and technical advice as well as measures for capacity building.

Furthermore, the project management office serves as point of information and sober analysis for all questions related to the German energy transition. Thus, it has become a trusted source for advisory with excellent relations to Chinese energy policy-makers and think tanks. Topics subject to discussion include: renewable energy promotion policy, power

system flexibility and electricity market reform. In addition, the project facilitates China's multilateral engagement with regard to the transition towards a sustainable energy system. The project supported the International Forum on Energy Transitions (IFET) hosted by NEA in Suzhou in November 2015 as well as the cooperation of CNREC and the Innovation and Technology Centre (IITC) of the International Renewable Energy Agency (IRENA) in Bonn. The collaboration with IRENA focuses on the localization of the REmap 2030 – China Country Report, an analysis of the cost structure of typical renewable energy projects in China as well as methodologies for cost-benefit analysis and impact assessment of renewable energy policies.

For additional information, please visit:

[BMUB IKI Homepage](#)



# Capacity Building for Emissions Trading Schemes (ETS) in China

Project title:	Capacity Building for Emissions Trading Schemes (ETS) in China
Commissioned by:	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Lead executing agency:	National Development and Reform Commission (NDRC) of the People's Republic of China
Overall term:	2012 to 2019
Keywords:	Climate change mitigation, greenhouse gas emissions, emissions trading, carbon market, capacity building

## CONTEXT

China has published new GHG reduction commitments in preparation for the 2015 Paris climate negotiations. The country will reach its peak emissions level by 2030. It also intends to reduce its emissions per unit of GDP by 60-65% during the same period. China had already committed itself to a 40-45% reduction in emissions intensity by 2020. An emissions trading scheme (ETS) is being introduced on a gradual basis in order to achieve these targets.

This makes China the first emerging economy to launch a trading scheme to limit GHG emissions. A pilot phase for this complex market instrument has been running since 2013 in the cities of Beijing, Shanghai, Tianjin, Chongqing and Shenzhen, as well as in Guangdong and Hubei Provinces. The project provides advice and training to further support the nationwide roll-out of the ETS from 2017.

## OBJECTIVE

The project aims at strengthening the capacity of key stakeholders involved in ETS design and implementation at the national and local level. It provides policy options regarding the preparation, establishment and operation of ETS to China's key institutions and involved stakeholders. Besides, the project seeks to enhance the dialogue between political decision-makers and the private sector and seeks to involve all stakeholders.

## APPROACH

The project provides specialist advice and training to government institutions in the pilot regions, dealing with the following aspects of emissions trading: market design and surveillance, regulation and legislative framework, definition of emissions caps, allocation mechanisms, trading platforms and carbon registries. The exchange of experiences with German and European institutions plays a substantial role in this context.

The project involves the private sector at a local level, providing information and training to relevant companies, plant operators, carbon markets and verification bodies in order to familiarise them with emissions trading, its application and its unique features in the different sectors. This work focusses on practical implementation and monitoring as well as reporting requirements.

Lessons learnt in the pilot regions are compiled and submitted to the Chinese Government. Along with advice from German and other European experts, these experiences are then used in the design process for the national emissions trading scheme. Staff from national institutions are trained for the country-wide roll-out of the ETS.

## RESULTS

The project has helped to establish the local trading platforms, advised local government institutions, and conducted training for companies from key industries in the respective pilot regions. Company



representatives have engaged in dialogues on regulations, strategies and their implementation with European industry representatives and national experts from their sector.

The project advised local carbon markets on how to establish and structure trading platforms, working with the European Energy Exchange (EEX) – the leading auction platform in Europe – to train them in the relevant skills.

For additional information, please visit:

[Project Homepage](#)  
[BMUB IKI Homepage](#)

Assistance was provided in Shanghai and Shenzhen with the development and adaptation of technical regulations for measuring and reporting of greenhouse gas emissions in a range of sectors.

In preparation of the national ETS roll-out, representatives of Chinese provincial authorities travelled to Germany where they underwent intensive training on emissions trading.

As the pilot regions have begun to successfully trade emissions certificates and as initial experiences have been gained, the project is stepping up its efforts to assist the Chinese Government in its preparation and establishment of the national ETS. These efforts concentrate on establishing the necessary legislative framework and national institutions.

# Electro-Mobility and Climate Protection

Project title:	Electro-Mobility and Climate Protection
Commissioned by:	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Lead executing agency:	Ministry of Science and Technology (MoST) of the People's Republic of China
Overall term:	2009 to 2016
Keywords:	Electro-mobility, climate change mitigation, battery recycling, sustainable transport, vehicle efficiency

## CONTEXT

As an important pillar of the economic sector in China, the automotive industry drives employment and shapes technological innovation. While it has significantly contributed to China's unprecedented economic growth over the past decades, daunting climate and environmental concerns have cast a shadow over this development. Air pollution, noise, accidents, congestion – the list of very tangible, negative external effects of transport is long. Less perceptible, but significant are the effects of the GHG emissions released as a result of the burning of fossil fuels by internal combustion engines. The Chinese Government is taking action at many levels to increase energy efficiency and to reduce the GHG emissions in the transport sector. In this context, China is opting for electro-mobility, also for reasons of industrial policy. When combined with an increased electricity generation from renewable energy sources, electro-mobility offers a viable means of contributing to sustainable urban mobility. However, there are still no corresponding and fully developed strategies in place anywhere in the world. China and Germany have entered into a bilateral cooperation agreement under which the project is to explore the potential of electro-mobility for enhancing climate change mitigation and environmental protection.

## OBJECTIVE

The objective of the Sino-German project is to provide national ministries and leading think tanks with the conceptual and technical background as well as

related strategies for exploiting the potential of electro-mobility to promote climate change mitigation and environmental protection in China. To this end, development paths are in place to allow the technology to be disseminated as effectively as possible. Through the development of toolboxes, trainings and guidelines, municipal administrations will have the means to integrate electro-mobility in sustainable urban transport. Legislative processes will be supported to ensure that policies, such as the integration of electric vehicles into fuel economy standards, support a climate-friendly fleet development.

## APPROACH

The project identifies and assesses the climate and environmental impact of electro-mobility in China and works with its partners to analyse different scenarios, involving leaders from politics and business as well as the general society in the process. The resulting scenarios describe options for penetrating the market with electric vehicles in a climate-friendly and environmentally-sound way. They offer a quantitative description of the roll-out of renewable energies and the smart integration of electro-mobility in China. This provides the basis for policy recommendations on shaping the legal framework and implementing pilot and demonstration projects in the field of renewable energy integration and efficient electric vehicle charging infrastructure. Joint studies and events build and enhance capacities of the Chinese partners to develop methodical and legal frameworks. The environmental regulations of China's transport sector are designed to prevent a rise in GHG emis-

sions by increasing the use of electric vehicles.

A study was conducted to evaluate the feasibility of a nationwide battery recycling system for electric vehicle traction batteries. On this basis, a new policy for traction battery recycling was enacted. A pilot and demonstration project will start in course of 2016.

Moreover, the project supports the information



exchange between China and Germany on fleet tests including supportive environmental research. The project is also developing guidelines for municipal administrations on how to promote electro-mobility in a climate-friendly way and how to integrate it into sustainable urban transport systems. Project partners are using these guidelines for joint information and training events. The focus continues to be on the feasibility of concepts for electric-vehicle applications, such as carsharing, which result in additional contributions towards climate and environmental protection by promoting a more sustainable mobility behaviour.

## RESULTS

In cooperation with Tsinghua University, the project assessed the climate and environmental impact of electro-mobility in China up to 2030. In this assessment, the partners recommended decreasing the reliance of China's electricity sector on coal-fired power plants and to further develop electric vehicle battery technology. The study shows that without

an increased market penetration of alternative propulsion technologies, the road transport sector will reach an emissions level of 794 million tonnes of CO<sub>2</sub> by 2030. The percentage reduction in respect to CO<sub>2</sub> emissions, relative to the business as usual scenario, is between 5 and 6%. Substantial CO<sub>2</sub> mitigation effects occur from 2020 onwards. By 2030 propulsion technologies could save between 40 and 47 million tonnes of CO<sub>2</sub>. Resulting key recommendations for Chinese policy makers are currently being developed.

The Sino-German Platform for Electro-Mobility was successfully initiated and is a fully established exchange platform between Chinese and German ministries who are domestically responsible for electro-mobility. Several Sino-German projects on issues ranging from the standardisation of electric vehicles to the climate-friendly promotion of electro-mobility, including battery recycling legislation, has resulted from the continuous exchange. In this context, GIZ has become a member of the international advisory board of the China EV100 – a consortium consisting of 100 high-level representatives from the political, private and academic sector.

With German assistance, China intends to integrate electric vehicles into its environmental and climate standards. To this end, the project partners are comparing and evaluating international regulations for promoting fuel efficiency in motor vehicles, the role of electric vehicles, and supplementary policy instruments for increasing vehicle fuel efficiency.

China and Germany are working together to support academic research in the area of smart, multi-modal mobility concepts and sustainable urban transport systems. Guidelines have been developed in cooperation with Tongji University, showing municipalities how they can integrate electro-mobility into a climate-friendly and environmentally sustainable urban transport system. In addition, promising (electric-) carsharing pilot projects have been launched in China.

For additional information, please visit:

[Project Homepage](#)

[BMUB IKI Homepage](#)

# Implementation of Complex Low-Carbon Compound Projects in City Networks in the Province of Jiangsu

Project title:	Implementation of Complex Low-Carbon Compound Projects in City Networks in the Province of Jiangsu
Commissioned by:	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Lead executing agency:	National Development and Reform Commission (NDRC) of the People's Republic of China
Overall term:	2015 to 2018
Keywords:	Jiangsu, energy efficiency, circular economy, low carbon development, integrated energy concepts

## CONTEXT

The energy efficiency and GHG targets set out in the previous 11th and 12th FYP (2006 to 2010 and 2011 to 2015 respectively) could mostly be achieved using simple energy efficiency measures and replacement of old equipment with newer, energy efficient ones. In the 13th FYP (2016 to 2020) Jiangsu needs to achieve a 45-48% reduction in the intensity of carbon emissions relative to 2005. Innovative solutions are therefore needed in the form of sophisticated (compound) energy concepts.

Jiangsu's Development and Reform Commission (JDRC) set favorable political conditions for applying low-carbon measures. Energy efficiency has been recognised as the most cost-effective and climate-friendly low-carbon strategy. Renewable energy sources are promoted as well. Now, JDRC is increasingly advancing towards low-carbon plans, combining, amongst others, energy efficiency with decentralised generation of heat, cooling and



electricity, renewable energy sources, increased use of waste energy and recycling of valuable waste materials in a circular economy. This can be applied to buildings, city quarters, enterprises and industrial estates. However, those responsible for

drawing up the actual implementation plans to put into practice those new energy concepts only have limited knowledge of how to develop such systemic solutions.

## OBJECTIVE

The project will familiarise decision-makers in Jiangsu's city networks with the German approach of a holistic energy planning to achieve the province's ambitious energy-saving and climate protection goals. This knowledge is intended to enable them to apply complex low-carbon energy concepts that have the potential to be significantly more efficient than the currently used, comparably simple approaches. This, in fact, is expected to lead to energy neutral or even plus energy demonstration projects, which are adapted to the local conditions of Jiangsu.

## APPROACH

For JDRC, one key to achieving the energy efficiency and climate change mitigation targets is the sharing and adaptation of specialist knowledge from Germany to those responsible for energy planning in urban and industrial areas. Thus, the project emphasises energy neutral or even plus energy renovations in already built-up areas. In this field little or no work has been done before. Yet, the energy-saving potential is considerable.

This is to be achieved through the following measures which are applied, respectively, to the four key areas "buildings" and "city quarters" as well as

“enterprises” and “industry parks”:

1. Developing replicable strategies for the holistic planning of applicable carbon neutral or plus energy systems
2. Identification of pilot projects and support for such integrated low-carbon concepts
3. Information dissemination to build the capacity of key actors (e.g. members of low-carbon working groups) in cities and industry to apply such integrated energy concepts

The effectiveness of this climate change mitigation approach is assured by JDRC’s political objectives, collaboration with low-carbon working groups in Jiangsu’s city and industry networks and the essential involvement of the private sector. Multipliers, such as the Jiangsu Information Center and the network of development and reform commissions, ensure that results can be disseminated and replicated. Jiangsu’s target to reach the peak of its GHG emissions before 2030 helps to raise the political pressure to succeed.

For additional information, please visit:

[Project Homepage](#)

[BMUB IKI Homepage](#)

## RESULTS

The project started in February 2015. The gradual introduction of holistic energy concepts is expected to result in carbon neutral and plus energy zones in Jiangsu. This will yield positive lock-in effects, ensuring that buildings, enterprises and the management of their interconnecting infrastructures in city quarters and industry parks remain energy efficient, cost-effective, and environmentally friendly throughout their lifespan. This will help Jiangsu to achieve its energy-saving and climate change mitigation targets for the 13th Five Year Plan and beyond.

The project results will be made available through the Jiangsu Information Center and other multipliers to cities and counties in Jiangsu as well as to other provinces, facilitating the application of the developed planning strategies outside the project’s immediate sphere of influence.

# Leadership Training on Environmental and Climate Issues

Project title:	Leadership Training on Environmental and Climate Issues
Commissioned by:	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Lead executing agency:	National Development and Reform Commission (NDRC) of the People's Republic of China, China Training Centre for Senior Personnel Management Officials (CTCSPMO)
Overall term:	2012 to 2017
Keywords:	Leadership Training, environment, climate protection, green economy

## CONTEXT

The People's Republic of China faces substantial challenges in regard to environmental and climate protection. The rapid economic growth has resulted in environmental damage and a shortage of natural resources. With China being the world's biggest CO<sub>2</sub> emitter, China's leadership accepts its unique responsibility and is committed to reduce GHG emissions.

In order to meet the targets and cope with existing challenges, the Chinese government seeks to establish a resource-saving, energy-efficient and environmentally conscious as well as low-carbon society and economy (12th FYP) by implementing the new climate policy (China's Policies and Actions for Addressing Climate Change 2012). Furthermore, in 2015 the revised Environmental Law became effective. The public administrative system, however, especially at local level, is insufficiently prepared to fully accomplish this ecological transformation and apply the respective regulations and standards for environmental and climate protection.

## OBJECTIVE

The project aims to improve the qualification of Chinese leaders to manage the challenges caused by environmental pollution and climate change. Furthermore, the project helps to prepare senior civil servants on all administrative levels – party, administration and government – for the implementation of environmental regulations as well as the objectives of the 13th FYP and beyond. To achieve

these goals the project aims to familiarise senior civil servants in the selected pilot regions with instruments to achieve a low-carbon and sustainable economy and society and strives to strengthen their decision-making competencies.

The project encourages the partner institutions to sustainably and systematically incorporate environmental and climate topics into their curricula for leadership training and to make use of modern training methods and instruments in regular seminars, e.g. action-learning.

## APPROACH

Besides the different departments at the NDRC and the China Training Centre for Senior Personnel Management Officials (CTCSPMO), further institutions are involved in the project implementation such as the Chinese Academy of Governance (CAG), and the Office of the Leading Group for Finance and Economics (OLGFE).

In general, the project is structured in three modules:

1. Green Leadership and introduction of Green Economy
2. Climate, air and water protection. Sustainable structural transformation in the resource-based city Pingdingshan
3. Experience exchange and advisory on green public procurement, strategic environmental impact assessment and public participation

General measures implemented throughout the

different modules include training and advisory measures in China for the main project partners and partners in corresponding pilot administrations, training measures for senior civil servants in Germany and wrap-up workshops to compile reports about the results of training measures and the exchange of experiences for the state council and province and/or city government. Partnering institutions are advised on selected environment and climate topics, curricula development and on the application of modern training methodologies and instruments such as action-learning. Support for the practical implementation of learning experiences and skills in the pilot regions and “refreshing” training courses for further deepening of knowledge and enhancement of the practical implementation performance complete the capacity development approach.

## RESULTS

By strengthening leadership capacities for green economy and ecological civilization, the project contributes to the goals of the environmental and social agenda of China until 2020.

In Jiangxi Province, the establishment of a green economy was promoted in cooperation with CTC. In general, environmental protection and green leadership was enhanced due to increased transparency and smooth communication between different departments of the provincial government. Concepts developed in Jiangxi are deemed pilot projects and are being successfully transferred to other areas, e.g. the city of Pingdingshan in Henan Province.

For additional information, please visit:

[BMUB IKI Homepage](#)

Advice on climate, air and water protection as well as sustainable urban development in the light of structural changes was provided to the resource-based city of Pingdingshan. The training efforts so far have led to a substantial sensibilisation of the



senior civil servants of the city administrations. In the medium run, this will lead to improved production processes and higher resource efficiency as well as lower energy, coal, water and material consumption.

In regards to advice on green public procurement and public participation the need for product-related climate protection and the demand for energy and resource-efficient products have been stimulated within the partner organisations. In the course of the project, new regulations on green procurement as well as on public participation have been adopted.



# Low-Carbon Land Use

Project title:	Low-Carbon Land Use
Commissioned by:	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Lead executing agency:	Ministry of Commerce (MofCOM) of the People's Republic of China
Overall term:	2012 to 2016
Keywords:	Climate change mitigation, land use methodologies, greenhouse gas accounting, incentive policies, rehabilitation of post-mining landscapes

## CONTEXT

China's GHG emissions pollute the environment and reduce the people's quality of life, while also damaging the country's reputation as a responsible member of the international community. The 13th FYP aims to reverse these trends and paves the way for a low-carbon economy.

With respect to land-use, the focus is now on reducing emissions from agricultural land, carbon storage in forest land, and standards for the rehabilitation of post-mining landscapes as well as international climate change mitigation pilot projects. This requires collecting corresponding GHG emissions data and establishing the associated measuring, reporting and verification systems.

## OBJECTIVE

The project's overarching goal is that policy makers have strategies for low-carbon land-use options at their disposal. The project develops GHG reducing land-use methodologies that produce robust figures required for the envisioned national cap and trade system while at a policy level, it develops recommendations for a wide replication of climate-friendly land-use options and explores incentive mechanisms for climate benefits.

## APPROACH

The project pursues a two-pronged approach, based on international (Verified Carbon Standard) and

national standards (prescribed by NDRC) as well as best practice on the ground. Measures are demonstrated in selected provinces at district levels in order to feed verifiable facts and figures into policy recommendations. The approach comprises four work packages:

- **GHG Reduction:** Demonstration of low-carbon measures in agriculture and forestry, including participatory measuring, reporting and verification as well as the identification of baselines;
- **GHG Accounting:** Identification of GHG inventory systems, including the quantification of reduction targets within China's institutional context;
- **Incentives:** Development of business models in the agricultural and forestry sectors to support a future trading of emissions certificates;
- **Rehabilitation of Post-mining Landscapes:** Identification of low-carbon activities, including the development of a technical guideline.

The MofCOM is the executing agency. Implementing agencies are the MLR and the SFA as well as the NDRC.

## RESULTS

Guidelines on low-carbon land consolidation, rehabilitation of post-mining areas, and forest carbon accounting have been developed. Pursuant to field tests at three different pilot sites in two provinces, tools and guidelines were validated by

three teams of international and national experts. These outputs were presented and discussed on a final workshop on supporting the respective sector reforms in land consolidation, post-mining land rehabilitation and forestry.

Regulatory strategies have been drafted as policy briefs. They provide recommendations on adapting the promotional instruments that are necessary to support the dissemination of the respective land-use models.

Capacity building in terms of forest carbon monitoring and low-carbon land consolidation was addressed at different levels and through a range of activities. The team of seconded and national advisors provided on-the-job training to local counterparts, who in turn provided valuable feedback for the guideline and tool development.

For additional information, please visit:

[BMUB IKI Homepage](#)



Decision-makers have participated in expert meetings, and have undergone further training on climate change mitigation issues.

Various land-use options have been demonstrated to decision-makers on the basis of international benchmarks in the framework of overseas study tours.

# Qualification of Key Actors on Energy Efficiency in the Building Sector

Project title:	Qualification of Key Actors on Energy Efficiency in the Building Sector
Commissioned by:	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Lead executing agency:	Ministry of Housing and Urban-Rural Development (MoHURD) of the People's Republic of China
Overall term:	2013 to 2016
Keywords:	Training, urban development, energy efficiency, capacity building, building sector

## CONTEXT

Only a significant improvement in energy efficiency, especially in the building sector, will enable the world to attain the internationally agreed target of limiting global warming. Chinese buildings account for nearly a third of the national primary energy consumption, and this percentage will continue to rise as the standards of living and rate of urbanisation increase.

The Chinese government has recognised the enormous potential for reducing GHG in the building sector. The 12th FYP aims to enhance the energy efficiency of buildings, which the Green Building Action Plan of 2013 embodied in targets for new developments and for renovations.

Nevertheless, key actors in Chinese cities and municipalities still have little knowledge of energy efficiency in the building sector. In order to successfully implement the measures required in the Green Building Action Plan, they require concise knowledge about practical solutions as well as the skills to put effective plans into action. Necessary materials and technologies are often either unknown or not yet ready to enter the market. Altogether, the tremendous energy-saving potential in cities has not been efficiently exploited.

## OBJECTIVE

The project aims to support China's path towards a low-carbon urban development. With the goal to achieve a swift and widespread transfer of German

up-to-date knowledge on climate-friendly practices, technical concepts, and innovative financial models to key actors in Chinese cities, the project sets up an effective dissemination mechanism for relevant information.

The project assists existing Chinese institutions to familiarise key actors with applied knowledge about building energy efficiency and climate change mitigation. Those include leading policy makers and administrators in local authorities as well as public and private sector organisations involved in the implementation of policies.

Due to the demand-oriented training and information offers, which are developed in the project, these key actors are enabled to better identify appropriate and feasible measures for climate protection in the building sector. Simultaneously, they are encouraged to implement local climate change mitigation action, taking into account German experiences, high quality standards and the particular characteristics of Chinese cities.

## APPROACH

German knowledge intermediaries, MoHURD, and four Chinese implementation partners – the CAG, the National Academy of Mayors of China (NAMC), the Chinese Society for Urban Studies (CSUS) and the Chinese Science Technology and Industrialization Development Centre (CSTC) – jointly put four approaches into effect to transfer German knowledge and experiences on climate protection in cities to key players at different levels

of the urban development process, including policy and decision-makers, public administration members and actors in charge of implementation:

- **Training for Trainers:** For MoHURD, the project establishes a trainer pool of Chinese experts in order to transfer German expertise to key actors in Chinese cities, ensuring a long-term effect. Providing them with the necessary qualifications, German professionals give extensive trainings on different topics related to energy efficiency in urban areas.
- **Development of Training Courses and Local Training Formats:** New training curricula, materials and formats are designed and examined in cooperation with future Chinese trainers and German experts. The project is aiming to devise self-financed training structures as well as systematic and replicable training modules.
- **Study Tours:** Study tours to Germany are organised for Chinese decision makers, trainers or other key players. These tours are an excellent opportunity for Chinese key actors to familiarise themselves with German experiences in the field of low-carbon urban development.
- **Advice on the Inclusion of Buildings in the Carbon Market:** In consultation with MoHURD, key stakeholders are briefed on new developments concerning the inclusion of the building sector in the domestic Chinese emissions trading scheme.

## RESULTS

At the beginning of the project, training needs in Chinese cities have been identified in thorough consultations between all partners. Based on this initial assessment, German and Chinese knowledge brokers designed training curricula and implemented different formats, such as roadshows for cities and seminars for provincial party schools. In total, seven training modules have been finalised, addressing different issues on climate protection

and energy efficiency in the urban context:

1. Comparison of energy efficiency in Chinese and German cities in the context of the global situation (English & Chinese)
2. German experiences on urban energy efficiency gains through green buildings (English & Chinese)
3. German experiences on urban energy efficiency gains through integrated planning approaches (English & Chinese)
4. German experiences on energy efficiency gains through the application of renewable energies in urban areas (English & Chinese)
5. Comparison of modern low-carbon urban development concepts between China and Germany (Chinese only)
6. German experiences on urban energy efficiency gains through eco-industrial parks (English & Chinese)
7. Energy-Saving and Carbon Mitigation Methodology in Existing Residential Buildings (Chinese only)



The training materials consist of training textbooks, presentation slides and in most cases also a trainer manual to assist Chinese trainers in the design of their own sessions. In order to effectively transfer the German expertise into Chinese cities in a locally adapted manner, a trainer pool of about 30 Chinese experts has been set up for the use of MoHURD. Six “training of trainer” seminars have been conducted in this regard. The systematic, replicable

training modules in combination with the trainer pool ensure a consistent transfer of knowledge.

Additionally, training outfits have been jointly developed with the implementation partners to further support the dissemination of information. For instance, this comprises a roadshow training format carried out by CSTC and a provincial

seminar format facilitated by CAG. So far, close to 4,000 people have taken part in such training events. Furthermore, five study tours to Germany have been organised to complement the domestic training formats and to further deepen the Chinese key actors' understanding of German experiences.

For additional information, please visit:

[Project Homepage](#)

[BMUB IKI Homepage](#)

# Sino-German Cooperation on Low-Carbon Transport

Project title:	Sino-German Cooperation on Low-Carbon Transport
Commissioned by:	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Lead executing agency:	National Development and Reform Commission (NDRC) of the People's Republic of China, Ministry of Transport (MoT) of the People's Republic of China
Overall term:	2015 to 2019
Keywords:	Low-carbon transport, technical vehicle efficiency, urban transport, greenfreight

## CONTEXT

In 2011, China's transport sector generated around 628 million metric tons of CO<sub>2</sub>, equivalent to 7.8% of all energy-related emissions (Germany, 2011: 149 million metric tons of CO<sub>2</sub>). With more than 35,000 registrations per day, China's total stock of private passenger cars exceeded 100 million vehicles in 2013. In the same way, the CO<sub>2</sub> emissions related to freight transport are increasing significantly: from 13.6 billion metric tons of CO<sub>2</sub> in 2000 to 45 billion in 2013. The rise in transport volume and vehicle ownership has resulted in high levels of air pollution, traffic jams and noise, particularly in densely populated urban areas. If further action is not taken, negative impacts from this sector will continue to increase.

China has made an international commitment to reduce its carbon intensity by 40 to 45% by 2020 compared to 2005 levels. Within its 12th FYP, China set the intermediate target of reducing carbon intensity by 17% until 2015. Action is needed first and foremostly in the areas of urban passenger and freight transport. In order to counteract the negative impacts of growing demand for individual mobility in cities, public passenger transport networks have been massively expanded, and restrictive regulations (for instance, driving bans and license plate restrictions) have been introduced. Initial piloting of financial regulative mechanisms, such as parking and congestion fees, is currently carried out. Within the freight transport sector, emission reductions can be primarily achieved through cooperation between forwarding agents to increase capacity utilisation and through the optimisation of

routing. Substituting and improving technologies in the automotive industry as well as optimising the fleet management and driving practices can pose an additional contribution to greater efficiency.

## OBJECTIVE

The exploitation of potential energy savings and subsequent emission reductions of transport policies and technical efficiency strategies form the centrepiece of the project.

Decision makers in relevant government authorities are equipped with strategies for a low-carbon development of China's transport sector and they are trained to exploit options for energy savings in order to reduce CO<sub>2</sub> emissions. Tools to quantify the emission reduction potential of transport policies, such as parking management as well as technical vehicle improvements, such as low-rolling-resistance tyres and alternative drive systems will be developed jointly. Capacities of Chinese staff will be enhanced for their application. This will result in the development of emission inventories (MRV systems) on a national and local level and improve decision-making with respect to transport policies and technical efficiency measures.

The improvement of capacities for the development of transport efficiency measures that encourage a shift to sustainable modes of transport and the application of improved vehicle technologies will contribute to the development and implementation of robust climate protection policies in the transport sector.

## APPROACH

The project supports the Sino-German policy dialogue on climate change mitigation strategies in the transport sector with a focus on both urban passenger and freight transport. The cooperation and knowledge exchange is further enhanced by establishing an international expert advisory group, which facilitates the exchange of experiences and intensive advisory support to top management levels of the MoT. The project partners are advised on the development of a set of assessment instruments to model low-carbon transport development scenarios at the national level as well as modelling emissions generated by urban passenger and freight transport. This allows for reliable and internationally comparable



calculations of GHG emissions generated by transportation activities.

Throughout the project, a set of policies for urban passenger transport and freight transport will be advanced. For instance, together with the MoT, a policy guide for parking management will be developed. New mobility services such as carsharing will be explored and guidelines for their implementation established. Strategic programmes of the MoT such as the Transit Metropolis Funding Programme will be supported through trainings and knowledge exchange. A dialogue on funding mechanisms and criteria for local subsidies for public transport will

be established and staff will be trained respectively. Regarding freight transport, policies on city logistics and transit alliances will be developed and implemented. The piloting of freight and urban transport policies and measures in at least two pilot cities provides local authorities as well as the private sector with information on mitigation options, and demonstrates their feasibility. These measures directly contribute to the development and implementation of robust climate change mitigation strategies.

## RESULTS

A low-carbon transport sector contributes not only to a climate-friendly development path, but also increases energy security and ambient air quality – a crucial improvement for the quality of life in Chinese mega cities.

Improved air quality, less congestion and more efficient mobility services are critical stepping stones for liveable and economically prosperous cities and nations. An institutionalised, mutually beneficial dialogue between MoT and BMUB will be established and shall contribute to the progress towards a low-carbon transport sector.

By the end of the project, a total of 25 cities will be trained to apply emission quantification tools and to evaluate transport efficiency strategies and policies. The project increases the competence of the Chinese administration to develop, implement and monitor strategies that effectively slow down the continuing growth in freight and passenger transport volume. All in all, measures will be initiated that support China in also achieving its mitigation goal, namely an emission peak in 2030, in the transport sector.

For additional information, please visit:

[Project Homepage](#)  
[BMUB IKI Homepage](#)

# Sino-German Environmental Partnership

Project title:	Sino-German Environmental Partnership
Commissioned by:	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Lead executing agency:	Ministry of Environmental Protection (MEP) of the People's Republic of China
Overall term:	2013 to 2016
Keywords:	Strategic environmental dialogue, air pollution prevention, emissions permit system, heavy metal pollution prevention, soil pollution prevention, environmental labelling, sustainable production and consumption, China Council for International Cooperation on Environment and Development (CCICED)

## CONTEXT

According to a study by the Chinese Research Academy of Environmental Sciences (CRAES), the annual costs incurred as a result of damage to the environment and the climate in China amount to more than 230 billion US dollars or 3.5 per cent of China's GDP. Within the past 12th and current 13th FYPs, the Chinese Government is pursuing the objective of transforming the Chinese economy into a green and low carbon economy. In order to reach the key objective of the Chinese government, the establishment of a "comprehensively well-off society" by 2020, the period of the 13th FYP is seen as crucial. Despite considerable progress with the design of environmental and climate related legislation, much work still needs to be done in terms of implementation. Although the total emission amount of major pollutants is likely to peak in the next five to ten years, the turning point of environmental quality improvement will still remain a major challenge and is not likely to occur in the short term.

## OBJECTIVE

The project aims to support the bilateral environmental dialogue and advises the MEP regarding the effective implementation of the 12th FYP's as well as the 13th FYP's objectives concerning forthcoming reforms and innovations in the area of governance structure (policy advice, legislation and regulations incentive systems, standards), mechanisms for the promotion of sustainable consumption and production, eco-labelling, the

improvement of resource efficiency, improvements in the fields of air, soil and water pollution prevention, as well as public participation.

Furthermore, the project implements Germany's contribution to the China Council for International Cooperation on Environment and Development (CCICED) and supports the elaboration of environment and development related policy recommendations to the State Council.

## APPROACH

On national level, the project offers demand-oriented advice to MEP and CCICED in its efforts to accelerate the construction of an ecological civilisation. These core topics are discussed on the governmental and operational levels during bilateral meetings, forums, workshops, conferences, personnel exchanges etc. In depth exchange of experience focusses on air pollution prevention, soil protection, climate- and resource-friendly consumption and production patterns and environmental labelling.

The project furthermore provides national policy and decision-makers with German and European expertise and experiences for the development of the current 13th FYP as well as related revisions of environmental policies and strategies. This includes key topics such as the improvement of the national governance system as well as the strengthening of the rule of law, which serves as a crucial basis for the national governance system.



Furthermore, the project supports the development of studies on key topics such as water and soil pollution prevention and control covering German and European legislative approach, best practice examples and lessons learnt. These studies serve as guidelines for relevant Chinese ministerial departments and as well as related institutions and agencies involved in subsequent implementation.

In its cooperation with the CCICED the project supports the drafting of policy recommendations to the Chinese State Council on specific climate, environment and development matters by drawing on German and international expertise.

## RESULTS

The project has been advising the MEP on air quality and integrated emission permitting system since 2013 in close cooperation with the German Federal Environment Agency (UBA). The Minis-



try's Department of Total Pollutants Control has been mandated to present comprehensive legislative regulations with the aim of improving environmental protection in industry.

The project has successfully supported exchanges of personnel between MEP's Environmental Development Center (EDC) and UBA in the areas of eco-labelling and green procurement. In the run-up to a conference in November 2014, both parties

signed a cooperation agreement that specifies the steps planned until the end of 2016 for the further harmonisation of environmental labels. In 2015, EDC agreed to collaborate with German stakeholders on developing criteria for air conditioners. The objectives are to reduce GHG emissions by using climate-friendly refrigerants as well as the reduction of energy consumption.

Since its beginning, the project has been drawing on German expertise and international success stories to support CCICED working groups in the areas of sustainable consumption and production, corporate social responsibility, urbanisation, institutional innovation and governance capacity, rule of law and the evaluation of the national plan of measures for air pollution control.

At the CCICED Annual General Meetings, the working groups' policy recommendations are prepared for the State Council. As part of this process, the working groups have successfully included lessons learnt in Germany and Europe. China's commitment to an environmentally friendly and low-carbon development has led to the adoption of various laws and regulations in 2015.

A State Council guideline on accelerating the building of an ecological civilisation reflects the top authorities' strong resolve to push for green and environmentally friendly development, optimizing land-use, streamlining the industrial structure, promoting resource conservation and environment protection as well as enhancing monitoring and supervision. Many of the reforms mentioned had been previously put forward as policy recommendations by the CCICED.

Barbara Hendricks, the German Federal Environment Minister, became International Vice-Chair of CCICED in 2014. This is a clear sign of the high regard in which Sino-German cooperation is held and will pave the way for stepping up collaboration.

For additional information, please visit:

[Project Homepage](#)

[BMUB IKI Homepage](#)

# Strategic Environmental Dialogues

Project title:	Strategic Environmental Dialogues
Commissioned by:	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Lead executing agency:	Ministry of Environmental Protection (MEP) of the People's Republic of China
Overall term:	2014 to 2019
Keywords:	Sino-German Environment Forum, Green Economy, low-carbon, multistakeholder dialogue, policy, business

## CONTEXT

Germany and China are economically closely linked: While China is Germany's most important economic partner in Asia, China maintains with Germany the most intensive trade relations in Europe. China and Germany also have a long-standing environmental cooperation and since 2003 they hold regular dialogue forums on environmental policy framework conditions, implementation mechanisms and technologies.

## OBJECTIVE

As a global project, the regularly held, bilateral Environment Forums offer the opportunity for representatives from politics, business and science from involved countries to exchange views on processes and measures for a sustainable economy.

## APPROACH

A policy-oriented, continuous exchange at the highest level including experts and other key stakeholders supports the identification of issues of common interest and strengthens the consensus on challenges and joint solution strategies.

## RESULTS

Germany supports China's environmental initiatives through various projects and through regular political dialogue. After the first joint conference, organised in 2000 in Beijing, with the aim to exchange views on environmental protection, the dialogue

between the two countries has been continuously intensified through the bilateral environmental forums, which take place at regular intervals. These forums brought together high-ranking representatives from politics, science and business from China and Germany.

The aim was to contribute to processes and reforms for a pathway to sustainable economic development



and to support, for example, technology transfer. In this framework and aside from the political exchange, the project promoted business-to-business talks as well as presentations of German and Chinese companies, providing opportunities to initiate business partnerships.

In total, four Sino-German Environment Forums have taken place, organised by BMUB, MEP, the Asia-Pacific-Committee of German Business (APA) as well as the Chinese Association of Environmental Protection Industry (CAEPI) - three of them in China and one in Berlin.

The fifth forum will take place in Nanjing, China in April 2016. These dialogues provide a visible and lasting contribution to the exchange of knowledge and experience in environmental issues that are crucial for a structured, global policy. The exchange on issues such as regulatory and market instruments

and environmental technology for the efficient achievement of environmental goals, can contribute significantly to a more effective environmental policy. Beyond this, the dialogues are promoting mutual understanding in multilateral processes.

For additional information, please visit:

[Project Homepage](#)



BMUB Projects Implemented by Other International  
Organisations with Significant Measures in China

# Energy Subsidy Reform Initiative

Project title:	Energy Subsidy Reform Initiative
Commissioned by:	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) among 13 other donors
Lead executing agency:	National Development and Reform Commission (NDRC), Ministry of Finance (MoF), Urumqi Municipality
Lead International executing agency:	The World Bank
Overall term:	2013 to 2018
Keywords:	Energy, social protection, macroeconomy & fiscal, trade & industry, public opinion & communications

## CONTEXT

Energy subsidies have proved to be a burden on the resources of many countries. When prices are kept below cost-recovery levels, the overall viability of the energy sector can be adversely impacted, which, in turn can impact efforts to improve supply quality, increase access, or increase efficiency. As well as creating unsustainable fiscal pressures, energy subsidies can be regressive and inefficient. They can also lead to the overconsumption of fossil fuels – reducing the incentive to deploy renewable resources, and boosting pollution and GHG emissions in the process. Even though the negative impacts of energy subsidies are often well known, attempts to reduce or remove subsidies have been challenging, leading to social unrest and policy reversals, in many cases. The public may lack information about the size of subsidies, the benefits of subsidy reform and their real impact on the competitiveness of energy intensive industries and vulnerable households.

## OBJECTIVE

The Multi-Donor Trust Fund of the Energy Sector Management Assistance Programme (ESMAP), which is administered by the World Bank, is helping expand expertise and resources in emerging economies and developing countries in order to drive climate-friendly and sustainable energy solutions. As part of this work, ESMAP is promoting various initiatives, one of which is called the Energy

Subsidy Reform and Delivery Technical Assistance Facility. The initiative supports countries as they design and implement energy subsidy reform programmes.

## APPROACH

Involving close collaboration with key stakeholders such as government ministries, think tanks, and civil society organisations, this initiative offers countries financing for comprehensive technical assistance on issues related to an energy subsidy reform, including:

- Analysis of the poverty, social, fiscal, macroeconomic, political economy, and climate change aspects of a subsidy reform
- Assessment of distributional impacts of subsidies at the household and macroeconomic levels
- Support for policy dialogue, consultations, communications strategies, and consensus building
- Support for improving the targeting and delivery of subsidies, including technology enhanced approaches
- Design and implementation of subsidy reform approaches, energy pricing frameworks, transition plans, energy efficiency and renewable energy solutions, and suitable social protection and other mitigation mechanisms

The Facility also supports knowledge exchange, encouraging peer learning on both diagnostics as well as solutions among client countries and at the international level.

## RESULTS

In 2014, the World Bank and ESMAP launched the Energy Subsidy Reform and Delivery Technical Assistance Facility. This USD 20 million initiative so far supports ten countries. In China, the World Bank is supporting two parallel activities. As part of the first activity with the MoF, NDRC and Energy Research Institute, the Facility is providing support to review existing methodologies to estimate the size of subsidies and to develop an approach that is best tailored to the specific circumstances in China; identifying and quantifying subsidies; and develop-

ing a road map to phase out subsidies. The team is currently reviewing existing methodologies with the intention of informing the choice of methodology for China.

As part of the second activity with the Urumqi Municipality, the World Bank is helping to support the preparation of the municipality's district heating tariff policy. This will involve a review and analysis of current heating costs and tariffs in Urumqi; a review and analysis of current and future investments in municipal gas heating services in the city; the development of a heat tariff and billing proposal; stakeholder consultation and the preparation of a recommended proposal for adjusting heating tariffs in Urumqi to accommodate the increased use of gas for heating.

For additional information, please visit:

[Project Homepage](#)

# Enhancing Low-Carbon Development by Greening the Economy in Cooperation with the Partnership for Action on Green Economy (PAGE)

Project title:	Enhancing low-Carbon development by greening the economy in co-operation with the Partnership for Action on Green Economy
Commissioned by:	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Lead executing agency:	Ministry of Environmental Protection (MEP) of the People's Republic of China National Development and Reform Commission (NDRC) of the People's Republic of China
International lead executing agency:	United Nations Environment Programme (UNEP)
Overall term:	2014 to 2017
Keywords:	Green Economy, Partnership for Action on Green Economy (PAGE), low-carbon development, opinion & communications

## CONTEXT

In China, the 12th as well as the 13th FYP contain numerous climate objectives. Furthermore, China pursues and represents the concept of “Ecological Civilisation”. This term describes a development strategy that targets sustainability and creates a society that lives in harmony, balancing the interests of people, industry and nature in the context of planetary boundaries.

Among the Brazil, Russia, India, China and South Africa (BRICS) countries, China is considered to be an important cooperation partner due to its size and the economic dynamics. Besides this, it is pursuing its own green economy approach.

In this context, a dialogue on green economy approaches is especially interesting.

## OBJECTIVE

Knowledge and implementation capacity of approaches and instruments for fostering a green economy geared towards low-carbon development are improved at the international level and in selected partner countries.

## APPROACH

The project aims to improve knowledge and capacity relating to green economy approaches and instruments geared towards low-carbon development at the international level and in selected partner countries. As a contribution to the Partnership for Action on Green Economy (PAGE), an initiative of UNEP, UNDP, ILO, UNIDO and UNITAR, the project advises partner countries on implementing green economy measures in the context of national low-carbon development paths.

The project also aims to improve the effectiveness of national green economy policy programmes. It accelerates the process of elaborating and implementing green economy policies by closing existing capacity gaps and promoting cooperation with other climate-related instruments (e.g. NAMAs and LCDS).

The complementary cooperation of UNEP and GIZ as well as the close cooperation and coordination with ongoing IKI projects and/or other GIZ activities and international stakeholders (e.g. GGGI) in the partner countries increases the impacts of the project.



## RESULTS

In China, the project builds on previous work by the UNEP regarding the green economy and on an existing cooperation with the MEP, the Policy Research Center for Environment and Economy (PRCEE) and the NDRC.

Under the leadership of the Chinese Academy of Environmental Planning (CAEP), the „Environment Goods and Services Sector (EGSS) Statistical Framework” was piloted and applied to the Chinese environmental industry sector in the city of Wuhan.

This study contributed to the identification of several recommendations for the application of the EGSS-framework in China. This framework is an important contribution that helped to demonstrate the general relationship between economics and the

environment and identify which specific economic activities depend on the environment and to what extent.

This work increases the understanding of the environmental industry sector and provides decision-makers in the MEP and the statistics administration recommendations for the data collection process and evaluation of EGSS in China. These recommendations are not only relevant for China but also for other countries dealing with EGSS.

Finally, this work contributes to the demonstration of ways in which China can measure and model its environmental industry to maximise resource efficiency and boost economic growth as the country transitions towards a low-carbon, green economy.

For additional information, please visit:

[Project Homepage](#)

# Bridging the Information Gap on Energy Efficiency in Buildings (bigEE)

Project title:	Bridging the Information Gap on Energy Efficiency in Buildings (bigEE)
Commissioned by:	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Lead executing agency:	Ministry for Housing and Urban-Rural Development (MoHURD) of the People's Republic of China Beijing China Society for Urban Studies (CSUS) Shenzhen Institute for Building Research Eco Technology Co., Ltd. (IBR) Top10 China
International lead executing agency:	Wuppertal Institute for Climate, Environment and Energy
Overall term:	2009 to 2016
Keywords:	Policy packages for efficient buildings, building technologies for upgrade to Ultra-Low-Energy Buildings

## CONTEXT

In the short and medium term, energy efficiency is the largest, fastest, and most cost-effective option for saving energy and mitigating climate change. Especially energy efficiency in buildings will play a major role as it has the potential to make a contribution of up to 36% in GHG emission reductions by 2050. However, while information on technologies and policies is abundant, it is scattered loosely and decision-makers find it difficult to access.

## OBJECTIVE

bigEE – “bridging the information gap on Energy Efficiency in buildings” – addresses the problem of scattered information by summarising knowledge and presenting comprehensive, independent, and high-quality information on energy efficiency in buildings, supporting decision-making and its implementation.

The bigee.net platform informs users about energy efficiency options and savings potentials, net benefits and how policy can support to achieve those savings. Targeted information is paired with recommendations and examples of good practice. The user shall get a comprehensive overview and be able to make informed decisions.

## APPROACH

The project takes an online and offline approach to inform about technical solutions, associated energy-saving potentials, economic benefits and policies in the field of building energy efficiency and efficient appliances. The web-based platform, bigee.net, features three different guides: Two guides on buildings and appliances outlining viable options and the technical savings potentials as well as a policy guide pointing out policy options to overcome market barriers in order to achieve savings potentials. The site further features pages dedicated to selected partner countries such as China.

The team has complemented the information on technologies and policies in China with offline dissemination activities. These activities include direct policy advice for MoHURD, training workshops for local decision-makers, presentations at important conferences and professional forums.

The project has partnered with the Beijing China Society for Urban Studies and Shenzhen Institute for Building Research Eco Technology Co., Ltd. (CSUS-IBR) on building-related technologies and policies. through their network. With Top10 China, the project has established a collaboration on appliances-related technologies and policies.

The partners have an extensive network with national and local policy makers, investors, and academics. Country-specific information is collected through those partners and, in the other direction, good practice from other parts of the world is channeled back into China through their network.

## RESULTS

bigEE.net provides free and public access to key Chinese policies that promote energy efficiency in buildings. In order to raise awareness of (ultra) low energy buildings among private and public decision makers within China, the project provides technical details as well as costs and savings of holistically planned and energy-efficient good practice buildings in different climate zones across China including two building projects reaching Passivhaus-grade efficiency.

In addition, the project co-hosted several workshops to disseminate know-how and provide ad hoc policy advice to national government.

These include: (1) A Sino-German workshop to support MoHURD in developing a national roadmap for improving building energy efficiency (2016 to 2030) in which the bigEE team and invited experts from GIZ, contributed German and international experiences; (2) A workshop in collaboration with GIZ China, which aimed at strengthening the capacity for local decision-makers on building energy efficiency, within the IKI-financed project “Qualification of Key Actors in the Building Energy Efficiency Sector”; (3) Two workshops in cooperation with GIZ and DENA at the annual “International Conference on Green and Energy-Efficient Building & New Technologies and Products Expo” to disseminate German know-how to a broader audience in the Chinese building sector.

For additional information, please visit:

[Project Homepage](#)

# Low Emission Capacity Building Programme (LECB)

Project title:	Low Emission Capacity Building Programme (LECB)
Commissioned by:	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) and the Australian Government
Lead executing agency:	National Development and Reform Commission (NDRC)
International lead executing agency:	United Nations Development Programme (UNDP)
Overall term:	2010 to 2016
Keywords:	Climate change, nationally appropriate mitigation actions (NAMAs), MRV (measurement, reporting, verification), low emission development strategy (LEDS), greenhouse gas emission

## CONTEXT

As the world's second largest GHG emitter, China has committed to reduce carbon dioxide emissions by 40-45% per unit GDP, based on 2005 levels by 2020. Also in support of emissions reduction, the National 12th FYP (2011 to 2015) highlighted the goal of exploring and establishing standards, identification of, and certification systems for low-carbon products. In August 2010, five provinces and eight cities in China were chosen to be low-carbon pilot regions in order to explore low-carbon development experiences. As part of the LECB Programme, the government selected two of these locations, Chongqing City and Guangdong Province, for development of low-carbon product standards, certification demonstration pilots, and greenhouse gas accounting methodologies.

The LECB-China project succeeded in providing China and the implementation agency, NDRC, with practical field results to build from and scale up to a national level design and implementation of low-carbon standards and methodologies.

## OBJECTIVE

The LECB Programme, launched in 2011, supports 25 countries with the goal of supporting economic development while helping build the

public and private-sector capacities needed to scale up country-driven climate change mitigation actions. LECB support is provided through the following complementary work streams: developing robust greenhouse gas inventory management systems; identifying opportunities and developing Low Emission Development Strategies (LEDS) and NAMAs; designing Measuring, Reporting and Verification (MRV) Systems of proposed mitigation activities; and facilitating the collaboration in mitigation by the private sector.

The LECB-China project supports the government to establish carbon emission and reduction certification as well as accreditation schemes. The LECB-China mitigation efforts focussed on developing low-carbon product certification implementation rules, certification standards, GHG accounting methodologies, and product-specific demonstration pilots.

## APPROACH

In Chongqing and Guangdong Province, LECB-China performed extensive research and stakeholder engagement related to the industry technologies, which are considered for low-carbon product certification (e.g., manufacture of motorcycles, wrought aluminum alloy extruded profiles, and portland cement), policy analysis, systems manage-

ment, and safeguarding measures to best design and implement low-carbon certification and accreditation schemes for each of the manufactured products. Comprehensive implementation plans were designed to provide guidance on how to implement the certification schemes, which includes guiding principles, data management requirements, a communications strategy, and a certification process (laboratories, certification bodies, professionals for certification) to ensure the technical competence to implement the programme, and to improve its effectiveness and efficiency.

Low-carbon product certification pilots were performed in both, Chongqing and Guangdong Province. The combination of low-carbon certification rules, standards, methodologies, and implementation of demonstration pilot projects worked together to serve as guidance on how to establish this type of certification and accreditation scheme, and hopefully to scale it up to a national level. Promotion and outreach among enterprises, customers, and government officials played a major role in LECB-China project implementation and raised awareness and interest among government officials and stakeholders; a much-needed aspect during the early stages of the development.

## RESULTS

The primary LECB-China project results are as follows: Low-carbon product certification implementation rules in Chongqing and Guangdong Province were completed by policy documents submitted for official approval in 2014. Diverse project workgroups were instrumental in the development of high-quality rules. In Chongqing, the workgroup consisted of the Chongqing International Investment Consultation Group Co., Ltd, the Chongqing Institute of Standardization, and the Chengdu Branch of China Quality Certification Center. In Guangdong Province, the workgroup consisted of the Guangzhou Branch of China Quality Certifi-

cation Centre, the Guangzhou Research Institute of Non-Ferrous Metals, and the China National Institute of Standardization.

In addition, evaluation methodologies and implementation rules for low-carbon motorcycle product certification were developed and submitted to the Chongqing local government for approval as a local standard. Evaluation methodologies and implementation rules for wrought aluminium alloy extruded profile low-carbon product certification were completed and implemented as a national standard in May 2014. Project promotion and publicity played a major role as well, as the implementation rules were presented to more than 80 enterprises.

Pilot demonstrations of the low-carbon product certification systems were successfully completed for eight categories of products (air conditioners, aluminium profiles, general portland cement, household electric refrigerators, flat or plate glass, flat panel televisions, motorcycles, small and medium 3-phase asynchronous motors). The pilots were successful in raising awareness among enterprises, government, and consumers on low-carbon development and energy-saving opportunities, improving the capacity of third-party certification entities, and making recommendations based on lessons learnt including on required incentive structures to scale up in the future.

In total, the pilots achieved an impressive participation with 34 product units from 10 enterprises in Chongqing, and four product types and 18 enterprises in Guangdong Province. The project was successful as local governments and enterprises improved low-carbon awareness, as well as their capacity in the low-carbon area. As a result of the LECB-China project, incentive programmes is being instituted. Large-scale policy incentives are recommended to be carried out by the government in order to stimulate low-carbon product certification initiatives in companies.

It was acknowledged that the enterprises focus on the benefits of the certification; however, without a master policy or national guideline, the local preferential policies and support can only make limited contributions to the certification works, which are still new to the market. Participation in LECB pilots was voluntary for enterprises. It was clear that if the enterprises did not fully understand the significance of its inputs, in terms of human and material resources, they would not be enthusiastic about participating in the certification systems. Going forward, reasonable incentives are needed to encourage participation, such as including low-carbon products in government procurement activities, offering financial subsidies, and incorporating the low-carbon products into local government performance evaluations.

The pilot projects provided key pieces of information to enable operations of the low-carbon standards system in Chongqing and Guangdong Province to be more sustainable, and to generate important lessons learnt. For example, it was learned that energy consumption calculations were not calculated separately for different cement products and this was found to potentially lead to an inaccuracy in GHG accounting. In addition, it was found that technical specifications for refrigerators and air conditioners need to be further improved, given the complexity of the production

process. The pilot also demonstrated that capacity building amongst government actors, enterprises, and third-party certification entities was required on a continuous basis. Specifically, based on what the pilot revealed at the certification level, the number and ability of staff are the key factors with regard to personnel training; at the enterprise level, the training needs to focus on specific technologies (e.g. the manufacturing process and management system) to better achieve sustainable levels of production; and at the government level, it was determined that the local governments would benefit the most from training in promotion techniques and technical as well as management capabilities.

Regarding the project monitoring, it was recommended to proceed with the establishment of an assessment mechanism for the oversight of the local government in order to ensure high quality standards and enforcement. An exit strategy is recommended for dealing with unqualified enterprises and certification entities.

Finally, the implementation of the pilots demonstrated that a continuous active promotion is required at multiple levels, including print media, and online social networking platforms, and as guidance for downstream product manufacturers and consumers.

For additional information, please visit:

[Project Homepage](#)

# Partnership for Market Readiness (PMR)

Project title:	Partnership for Market Readiness
Commissioned by:	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), among 12 other donors
Lead executing agency:	National Development and Reform Commission (NDRC)
International lead executing agency:	The World Bank
Overall term:	2011 to 2021
Keywords:	Carbon pricing, emissions trading schemes, market mechanisms, carbon tax, climate finance

## CONTEXT

GHG emissions from the burning of fossil fuels already carry a hefty price, though people are rarely aware of it. The bill comes masked as the external costs of carbon emissions – costs that the public bears in other ways, such as damage to crops and health care costs from heat waves and droughts or to property from flooding and sea level rise. Instead of dictating who should reduce emissions where and how, a carbon price gives an economic signal and polluters decide for themselves whether to discontinue their polluting activity, reduce emissions, or continue polluting and pay for it. In this way, the overall environmental goal is achieved in the most flexible and cost-effective way to society. The carbon price also stimulates clean technology and market innovation, fueling new, low-carbon drivers of economic growth.

## OBJECTIVE

Launched in 2010, the Partnership for Market Readiness (PMR) is helping establish carbon markets in developing, emerging and transition countries. Germany is one of twelve donors in the partnership. The secretariat function is performed by the World Bank. Guided by the needs of the partner countries, the PMR aims to support coun-

tries in their efforts to scale up GHG mitigation in a cost-effective manner by improving their technical and institutional “readiness”. The PMR is particularly committed to helping countries design and implement carbon pricing instruments, such as emissions trading schemes, carbon taxes and crediting and offset mechanisms by promoting good practices at the technical level and sharing lessons on a knowledge exchange platform. A new work stream aims to support countries’ efforts to establish post-2020 mitigation scenarios and identify packages of effective and cost-efficient policies for the mitigation component for their INDCs under the UNFCCC process. In China, the PMR seeks to support the officials in the development of core components of a nationwide ETS.

## APPROACH

There are two components to the project. The first component is an enabling design of key building blocks for a national ETS. This component will support technical assistance, studies, including policy research and analysis, and workshops that aim to assist the NDRC in developing the key ETS building blocks. Generally, the studies under each sub-component will involve a series of activities that will lead to recommendations for each building block.

Stakeholder consultation will be built into the process to ensure that relevant governmental agencies, industries and civil society's inputs and comments are taken into account. This component consists of seven sub-components: Development of methodologies for coverage, cap, allocation, and supplementary mechanisms; development of a legal framework and oversight system; development of a data collection and MRV system; development of an ETS registry; research on participation of state-owned enterprises; research on power sector issues for a national ETS; and provincial level enterprise and economic data collection and consultation. Finally, the second component is the China PMR synthesis report, consultations and project management.

## RESULTS

The PMR has established itself as a central platform for supporting national mitigation efforts through the use of carbon pricing instruments; the Partnership Assembly meetings occurring twice a year as well as various workshops and e-courses have been particularly helpful for the so-called South-South exchange. So far, 18 countries have been approved

to receive funding for implementing measures. In addition, Kazakhstan, the Federal State of California and the Canadian Province of Quebec have, as technical partners, provided their experience in emissions trading. With the support of the PMR, currently twelve final Market Readiness Proposals (MRPs) have been endorsed by implementing countries that build on a comprehensive analysis and stakeholder consultation processes and thus represent the cornerstone in implementing carbon pricing instruments.

China has adopted emissions trading as one tool to achieve its mitigation target. The Chinese government is piloting emissions trading in five provinces and two cities, accounting for 18% of China's population and 28% of its national GDP. All seven pilots were launched between 2013 and 2014. They include: Beijing, Tianjin, Shanghai, Chongqing, Hubei, Guangdong, and Shenzhen. The target launch date of the national ETS is between 2017 and 2018. China presented an MRP in 2013 with the support of the World Bank. The PMR has already allocated USD 8 million to China for the implementation of MRP activities.

For additional information, please visit:

[Project Homepage](#)



## GIZ Office China

Sunflower Tower 1100  
37 Maizidian Street  
Chaoyang District, 100125 Beijing, PR China

T: +86 (0)10 8527 5180

F: +86 (0)10 8527 5185

E: [giz-china@giz.de](mailto:giz-china@giz.de)

W: [www.giz.de](http://www.giz.de)

Design: AKRYL digital agency, Beijing and Hamburg

Front cover picture: Ursula Becker

Pictures: Sandra Vogel, Nadine Boss, Stefan Mann, eyetronic (iStock),  
Daniel Bongardt

Beijing, April 2016

The brochure has been compiled by the IKI project "Sino-German Climate Partnership and Cooperation on Renewable Energies".