

Sustainable Energy for Development



Interim balance
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Overview

At the World Summit 2002 in Johannesburg the German government had announced its programme "**Sustainable Energy for Development**". This programme is meant to help expand cooperation with the developing countries into becoming a strategic partnership; the German government will make a total of EUR 1 billion available for that purpose between 2003 and 2007: EUR 500 million for renewable energies (RE) and EUR 500 million for increasing energy efficiency (EE). This commitment serves to improve access to energy in the partner countries and at the same time reduce poverty. However, more energy should not result in a higher risk for the global climate through the uncontrolled emission of carbon dioxide and other greenhouse gases. The aim of Germany's policy therefore is to supply more people with energy while ensuring at the same time that local and global environmental damage and climate risks are avoided as far as possible.

The gist of the programme is a more intensive bilateral cooperation with selected cooperation countries (**Chapter 1**). The funds provided will be deployed with the help of proven instruments of bilateral development cooperation. The partner countries submit proposals which the governments involved will then decide upon. KfW and GTZ are the main implementation agencies.

With this approach, the German government intends to prepare new ground for public-private partnerships (**Chapter 2**) and, increasingly, form strategic partnerships under multilateral cooperation for enhancing "sustainable energy" (**Chapter 3**).

In addition, EUR 500 million has been available since 2005 as a Special Facility for investments into Renewable Energies and Energy Efficiency (**Chapter 4**). The establishment of this Fund had been announced by the German government at the International Conference on Renewable Energies 2004 in Bonn which addressed the further expansion of alternative sources of energy (**Chapter 5**).

1. Strengthening bilateral cooperation

Energy programmes are supported in some 45 partner countries. Current projects have a total volume of about EUR 1.6 billion. Of this amount, EUR 929 million are used for projects to promote renewable energies – i.e. the use of hydropower, wind and solar energy, geothermal energy and the sustainable utilisation of biomass – and EUR 706 million for projects to raise energy efficiency. The bulk of total funds committed – about EUR 1.14 billion – goes to Asia, followed by Africa (some EUR 337 million), Europe (about EUR 81 million) and Latin America (about EUR 44 million). Energy is a priority sector in the German government's cooperation with seven countries: Afghanistan, Albania, Bangladesh, Georgia, India, Nepal and Pakistan.

The **trend reversal was successful**. All in all, the German government committed new ODA funds (ODA = Official Development Assistance according to OECD criteria) amounting to EUR 1.1 billion for 90 energy projects (cf. Annex) in the years 2003 to 2005. New commitments that had been pledged for a period of five years have already been implemented after three years. Of these, EUR 555 million went to projects promoting renewable energies, and EUR 383 million to projects enhancing energy efficiency. Further financing commitments to the tune of EUR 170 million were made in 2005 for five projects under the Special Facility for Renewable Energies and Energy Efficiency.

The investments agreed upon are largely used to improve the **energy infrastructure** and for technical advisory services. Projects serving the more general **development of markets** are gaining in importance, such as the putting into place of maintenance and distribution

structures, the training of technical staff or the setting up of energy institutes. These structure-building measures, carried out successfully, e.g. in the cooperation with China, are key requirements that must be met to ensure an autonomous and sustainable development of offer and demand in the field of environment-friendly energy services, and they will continue to play a major role. The situation is similar with regard to policy advice, as agreed upon with Uganda, for example. Putting into place a suitable legal and institutional environment – development cooperation is pursuing this objective.

Development cooperation based on examples

➤ *The simplest way of proceeding: Saving*

Potentials of saving energy range between 25 and 85%, depending upon the respective sector and national level of development. With the help of programmes to modernise turbines, the deployment of modern measuring techniques and capacity building and training, substantially higher efficiency levels can be achieved. With these measures applied in several coal-fired power stations, 2 million tons of coal and the emission of 5 million tons of CO₂ can be saved in the People's Republic of China, to give one example.

➤ *Decentralised promotion of renewables*

In the more remote regions of the People's Republic of China, more than 30 million people do not yet have any access to electricity. Since supply through connection with grid systems is often impossible because of the high costs involved, the Chinese government goes for the use of decentralised renewable energies in these regions. German development cooperation supports, e.g., the installation of photo-voltaic plants there to ensure a basic supply in selected villages. With this programme a twofold objective is pursued: to improve the living conditions of the rural population in a sustainable manner and, at the same time, make a contribution to protecting resources and the environment through using renewable energies.

➤ *Advisory services lead to energy investments*

A technical cooperation (TC) project in **Uganda** is intended to strengthen the work of the national "Energy Department (ED)" as one of four central departments of the Ministry of Energy in Kampala. In order to obtain a better overview on the potential and opportunities of renewable energies, the ED has drawn up, with German support, a list of requirements for the energetic utilisation of biomass. Advisory activities are showing first success. Since the beginning of the project the investment volume in the energy sector has risen by 20 per cent, and three non-governmental organisations (NGOs) and two private companies are tackling concrete projects. The German transfer of know-how is meant to contribute to reforming the Ugandan energy sector and to ensure that consumers accept, in particular, the offer of environment-friendly and renewable sources of energy.

➤ *Micro hydro-power stations as an alternative*

Nepal's rural population has hardly any access at all to electricity. As a consequence, micro hydropower stations are supported under German development cooperation. The project which was begun in 2001 offers technical support to all those who wish to set up or rehabilitate small-scale hydropower stations. In addition, the project is understood to act as a coordination forum for private investors, village communities, potential lenders, NGOs and consulting firms. In order to satisfy their energy needs, the Nepalese people mostly burn wood (70 % of the primary energy consumption). In the hilly and sparsely populated regions, small hydropower stations offer a good alternative to traditional practises. Furthermore, they stimulate economic activities and, thus, improve living conditions as a whole.

➤ *The power of the wind*

The wind park "Zarafana" near the Red Sea in Egypt is designed to produce electrical energy in an environment-friendly manner. This contributes to the regional – and global – protection of the environment. Upon completion of the installation of the wind power station, a total of 600 GWh electrical energy is expected to be fed into the national grid, thereby preventing the emission of more than 360,000 tons of carbon dioxide. The project in which Germany takes part partly in the form of low-interest credits, partly the provision of grants, consists of four sub-projects, three of which have been finalised and one is under construction.

2. Partnerships with the Private Sector

Parallel to intensified bilateral official cooperation, contacts with the private sector are also being improved. In 2003 and 2004 a number of **new partnerships** were established whose aim is the dissemination of renewable energies and the improvement of energy efficiency. The respective agreements support private sector involvement in the following countries:

- Ghana, Mali, Morocco, Senegal, South Africa, Tanzania
- Argentina, Brazil, Nicaragua, Panama
- China, Georgia, India, Laos, Philippines, Vietnam
- Bulgaria, Serbia/Montenegro.

Since then, projects for rural electrification through solar stream systems have been started in Laos, Ghana, Mali, Senegal, South Africa and Tanzania.

The BMZ and its implementing organisations, especially KfW and GTZ, have intensified the **dialogue** with several industrial federations, in particular solar industry and wind energy companies. The aim is to broaden the basis for future projects where entrepreneurial commitment and developmental benefits go hand in hand to bring together private and public financing. With this aim in mind the institutions involved in German development cooperation also participate in the **Export Initiative Renewable Energies**. In 2005 the BMZ, together with the Deutsche Energie Agentur (dena – German Energy Agency), had organised an information event in which, besides representatives from development cooperation institutions, also representatives from federations and enterprises of the renewable energy sector and NGOs took part. In-depth information was provided on possibilities of promotion. Discussions centered on mutual expectations and ways of improvement. These efforts are to be expanded to include all renewable energy industries and will be intensified further. With the help of an improved range of information (countries, programmes of bi- and multilateral donors, demand-oriented technologies) and better opportunities for partnership contacts (especially for enterprises from developing and industrial countries) the participation of the private sector in development policy activities is to be strengthened.

A striking example of what PPPs can contribute to overcoming energy poverty is the project "Lohoko smallscale hydropower for rural development" started jointly in 2005 by German development cooperation and the e7-group – an association of the major electricity suppliers worldwide – in Madagascar. This is an exemplary way of demonstrating how the development of rural regions can be advanced significantly. While the e7-Group feeds in its expertise and investment power for sustainable production and distribution of electrical energy from small hydropower stations, GTZ on behalf of the BMZ sees to it that this energy is used to promote growth and reduce poverty.

Furthermore, the Deutsche Investitions- und Entwicklungsgesellschaft (DEG) is involved in the promotion of renewable energy projects worldwide within the framework of its mandate as development financing institution for the private sector – including German project partners. In India it supports the construction and operation of small hydropower stations. In

Brazil, China and Turkey it participates in the financing of wind power plants. DEG is furthermore pursuing project concepts in the field of geo-thermal energy and biomass. Via the PPP facility it supports, inter alia, a project in the Philippines for the establishment of a measuring station to observe a major geothermal field. Moreover, DEG is cooperating with the TÜV Rheinland Group, another PPP project, to advise enterprises in the realisation of climate protection objectives and the generating of climate protection certificates.

3. International cooperation

German development cooperation played a major role in the launching of **three initiatives** at the Johannesburg World Summit, which address the issue of energy for poverty reduction and sustainable development, while placing different emphasis in each case:

- EU Energy Initiative for Poverty Eradication and Sustainable Development (EU-EI)
- Global Village Energy Partnership (GVEP)
- Global Network on Energy for Sustainable Development (GNESD)

The BMZ supports all three initiatives in their dynamic development. In addition, there are other networks and initiatives, such as the Renewable Energy and Energy Efficiency Partnership (REEEP) and the Global Forum for Sustainable Development (GFSE). A more detailed description of these initiatives is dispensed with at this juncture as this would be a rather complex venture. Rather, it is important to underline that, as a result of the International Conference on Renewable Energies in Bonn in 2004 ("renewables2004"), a new network has been established which permits a global policy dialogue for renewable energies: Renewable Energy Policy Network for the 21st Century (REN21, Chapter 4).

The World Bank, too, plays a particularly important role, and so does the energy sector fund ESMAP administered by it, which had been established in 1983. ESMAP is a global initiative to advise governments and give technical support in the energy sector in developing and newly industrialised countries. The fight against poverty and the achievement of a sustainable economic development, based on an environment-friendly energy supply, both play a key role here. Renewable energies and energy efficiency are of special importance in this context. This Energy Window receives support from the BMZ to the tune of EUR 3.5 million over a period of three years.

Furthermore, the BMZ maintains an active dialogue with the **regional development banks** in order to promote the use of renewable sources of energy. In 2004, renewable energies were a key issue for the German side in the annual meetings of the regional development banks which, in turn, sent their representatives to the "renewables2004" and demonstrated their basic interest in renewable energies in a joint side event to the conference.

On the occasion of the Renewables Conference in Bonn the BMZ and the **Inter-American Development Bank (IDB)** had signed a "Strategic Partnership Agreement on Renewable Energies". The aim of the partnership is to establish closer cooperation between German development policy and the IDB in the field of renewable energies and energy efficiency in Latin America and the Caribbean. The BMZ currently supports the energy partnership with a total of EUR 10.6 million (EUR 1.6 million TC via GTZ; EUR 1.0 million directly via the IDB; EUR 8.0 million as a loan via KfW to the Central American Bank for Economic Integration – CABI – for cooperation projects with the IDB). These programmes are meant to raise awareness of the fact that with greater energy efficiency and the use of renewable energies positive development opportunities will arise.

4. Special Facility for Renewable Energies and Energy Efficiency

On the occasion of the International Conference "renewables2004" in Bonn the German government had announced the establishment of a **Special Facility for Renewable Energies and Energy Efficiency**, funded with EUR 500 million. This Facility was established by KfW and has meanwhile taken up work. The funds are used between 2005 and 2009 to finance low-interest loans to public and semi-public institutions for investments in development cooperation partner countries. In individual cases also private enterprises in cooperation partner countries may be eligible for support.

The programme component **renewable energies** assists investments into wind power stations, the use of biomass and biogas power stations, photovoltaic and solar thermal energy, geothermal power stations or hydropower stations. The programme component **energy efficiency** supports investments in the whole chain of effects, from generating primary energy to ultimate utilisation.

The financing commitment of EUR 170 million made in 2005 are used to support five projects in Azerbaijan, India, Chile, Latin America and Morocco:

- In Morocco 37,000 households in rural regions which so far had not been connected to the electricity grid will be given access to modern energy services by means of what is called the Solar-Home-System. The cooperation with the private partner ensures the change of batteries and the regular maintenance of the installations over the next 10 years.
- In Azerbaijan the extension of the transmission installations contributes to keeping recurring power cuts, likely to cause damage to economic development, at a low level.
- In India the rehabilitation of distribution nets helps reduce the – higher than average – losses occurring in the power distribution. In addition, households in the region not yet connected to the electricity grid are given access to energy for the first time.
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- In Chile low-interest loans for investments in the field of renewable energies and energy efficiency are provided via a loan programme operated together with partner banks. These funds may be used by enterprises as well as public applicants.
- An identical approach is pursued in the Andean states together with the supra-regionally operating development bank Corporación Andina de Fomento (CAF).

A number of proposals for subsequent years have already been submitted by the partner countries. The KfW Development Bank is appraising the eligibility of these proposals for support under the Special Facility.

More details on the Special Facility can be obtained under RE-EE@kfw.de.

5. International Conference on Renewable Energies (renewables2004)

The conference "renewables2004" had been organised jointly by the Federal Ministry for Economic Cooperation and Development (BMZ) and the Ministry of the Environment. It gave the world a clear and significant signal for starting or continuing on the path of using more renewable energies and bring about a global energy change. Its two most important political messages were:

- Renewable energies can help overcome worldwide poverty.

- Renewable energies, besides increasing energy efficiency, are indispensable for climate protection and permit a safe energy supply less dependent upon oil.

Key results of the conference are the Political Declaration, the Policy Recommendations and the International Action Programme. The **Political Declaration** contains common targets to strengthen renewable energies. The **Policy Recommendations** offer decision-makers a platform for the establishment of a conducive political environment, possibilities of financing and of strengthening institutional capacities. The **International Action Programme (IAP)** is composed of some 220 voluntary commitments to expand renewables worldwide. It is estimated that with the implementation of the IPA 1.2 billion tons of CO₂ emission can be prevented each year, beginning in 2015. This would equal about 5 % of the global CO₂ emission and would exceed Germany's total CO₂ emission in 1990. In order to stabilise progress it was also decided to create a global policy network for renewables, the **Renewable Energy Policy Network for the 21st Century, REN21**. Largely supported by Germany, REN21 has started its activities officially in June 2005. At the end of 2005, REN21 published a comprehensive survey on the global development of renewable energies with its **Global Status Report 2005**. Given the positive echo, REN21 will continue this series. An updating for 2006 is available on the internet. A new edition will be published in autumn 2007. One of REN21's major tasks is to monitor the implementation of the International Action Programme; in June 2006 it published a first report on this issue. Further information is available under www.ren21.net.

The Chinese government organised an international follow-up conference in November 2005 with substantial assistance from the German government, the "**Beijing International Renewables Conference 2005**" in Beijing, at which the importance of renewable energies especially for the developing countries was emphasised once more. The "Beijing Declaration" proposes that the UN Commission on Sustainable Development (CSD) take a decision in May 2007 on a formal monitoring of the pledges made in the Johannesburg Plan of Implementation and the International Action Programme.

New commitments 2003 to 2005 in development cooperation for projects to promote renewable energies and to increase energy efficiency (in EUR million; cf. footnotes)

A) Renewable Energy

Afghanistan: Promotion of Renewable Energy (TC)	1.50
Afghanistan: Reform of the Energy Sector in Rural Areas (TC)	1.75
Afghanistan: Rehabilitation of Sarobi and Mahipar power plants (FC)	5.50
Afghanistan: Rehabilitation of Chak-e-Wardak power plant (FC)	2.00
Albania: Energy Sector Programme (FC)	9.00
Albania: Water Power Plant Bistrica II (FC)	1.50
America non-apportionable: Programme Renewable Energies / Energy Efficiency (TC)	2.34
Armenia: Renewable Energy Promotion Programme (FC)	7.50
Armenia: Water Power Plant Leriberd (FC)	12.00
Asia non-apportionable: Regional small-sized Hydropower Stations Programme South Asia (TC)	1.00
BCIE: Renewable Energy and Energy Efficiency Programme (FC)	26.50
Bosnia-Herzegovina: Energy Sector Programme (FC)	7.00
Brazil: Renewable Energies in the North and North-East (FC)	2.45
CAF: Renewable Energy and Energy Efficiency Programme (FC)	50.00
Chile: Promotion of Renewable Energy and Energy Efficiency (FC)	15.00
China (PR): Solar Energy Inner Mongolia (FC)	8.00
China (PR): Solar Energy Gansu (FC)	6.00
China (PR): Renewable Energy in the Tibet Region (TC)	1.50
China (PR): Renewable Energy Programme (TC)	4.00
Ecuador: Protection of Tropical Forest Grand Sumaco III (FC)	1.50
Egypt: Wind Park Zafarana IV (FC)	54.45
Egypt: Reg. Centre of Education and Research for Renewable Energy (FC)	6.00
India : Renewable Energy Programme – PFC II (FC)	1.30
India: Biomass Power Generation (FC)	5.97
India: Indo-German Energy Programme (FC)	90.00
Madagascar: PPP-small-sized Hydropower Station Lokoho for Promotion of Rural Development (TC)	2.00
Mali: Renewable Energy for Rural Energy Supply (FC)	3.70
Morocco: Measures for Rehabilitation of Water Power Plants (FC)	19.00
Morocco: Wind Park Tanger II (FC)	50.00
Nepal: Middle Marsyangdi Hydroelectric Project (FC)	21.10
Pakistan: Medium-sized Hydropower Stations (FC)	40.00
Pakistan: Promotion of Renewable Energy (TC)	2.00
Pakistan: National Programme for Promotion of Hydropower / Support of RE and EE implementing agencies (TC)	2.97
SADC: Efficient Use of Biomass Energy in Southern Africa (TC)	0.50
Serbia-Montenegro: Rehabilitation of Hydropower Plant Bajina Basta – UFK II (FC)	30.00
Serbia-Montenegro: Rehabilitation of power plants / Environmental measures (FC)	10.00
Serbia-Montenegro: Reg. Facility for RE & EE (Serbia, Montenegro, Kosovo) (FC)	5.00
South Africa: Rural Electrification through RE (Photovoltaic) II (FC)	9.50
Sri Lanka: Renewable Energy – NDB VII (FC)	2.50
Tajikistan: Replacement 220/500 KV Switchgear Hydropower Plant Nurek (FC)	20.00

Tunisia: Promotion of Renewable Energy (TC)	1.50
Pilot / Sector - Programme: Solar Cooker Field Test (TC)	0.09
Pilot / Sector - Programme: Programme for Promotion of Utilizing Geothermal Energy (TC)	3.00
Pilot / Sector - Programme: Implementation of Recommendations of the World Commission on Dams (TC)	1.20
Pilot / Sector - Programme: Wind Energy Programme TERNA (TC)	1.00
Pilot / Sector - Programme: Support of Follow-Up of renewables2004 Results(TC)	4.25
Pilot / Sector - Programme: Promotion of Renewable Energies, particularly Solar Energy (TC)	1.50
Pilot / Sector - Programme: Local Renewables Model Communities Network – LoRen (TC)	0.75
Sum total renewable energies	555.32

B) Energy Efficiency

Afghanistan: Rehabilitation of Power Supply (FC)	4.00
Afghanistan: Reconstruction Programme (FC)	1.50
Afghanistan: Transmission Line Heiratan - Pul-e-Khumri (FC)	11.00
Afghanistan: Support of the Power Sector and Promotion of RE (TC)	2.00
Armenia: Regional Transmission Network Armenia - Georgia (FC)	4.70
Azerbaijan: Regional Transmission Network Baku - Tiflis (FC)	0.50
Bangladesh: Power Transmission Line Dhaka North - National Grid (FC)	5.00
Bangladesh: Energy Efficiency in the Industry Sector (TC)	2.00
Brazil: Enhancement of Energy Efficiency (TC)	1.50
Brazil: Energy Partnership: Programme for Improving Energy Efficiency (FC)	15.00
Bulgaria: Energy Efficiency Facility (FC)	11.20
Cambodia: Transmission Link between Kampot – Takeo (FC)	4.50
Cambodia: Rural Electrification (FC)	6.00
Chile: Promotion of Energy Efficiency (TC)	0.80
China (PR): Environment Protection in the Energy Industry (TC)	6.00
Croatia: Promotion of Energy Efficiency Programme (FC)	21.50
Egypt: Environmental Measures Power Plants II (FC)	17.80
Georgia: Programme of Rehabilitation of Transmission Line (FC)	4.00
Georgia: Regional Transmission Network Armenia – Georgia (FC)	1.30
India: Power Sector Reform Programme II / Extension Vijayawada Thermal Power Station (FC)	177.92
Kyrgyzstan: Structural Adjustment Power Supply Bischkek (FC)	4.00
Mongolia: Training Programme of Power Plant Employees (TC)	1.10
Mongolia: Energy Efficiency Programme I (FC)	8.00
Pakistan: 500 KV Substation Rewat (FC)	10.00
Pakistan: Hydropower Promotion Programme (TC)	0.33
Romania: Development/Implementation of Monitoring Techniques for Electro-Energy Systems (TC)	0.30
Romania: Thermal Sanitation of Buildings (TC)	0.90
Serbia-Montenegro: Power Supply Tamnava/West (Serbia) (FC)	9.00
Serbia-Montenegro: Regional Credit Line EE Serbia, Montenegro und Kosovo (FC)	5.00
Serbia-Montenegro: Rehabilitation Energy (Kosovo) (FC)	5.50
Serbia-Montenegro: Rehabilitation of District Heating Systems III (Serbia) (FC)	10.00
Serbia-Montenegro: Promotion of the Energy Sector in Kosovo (FC)	11.50
Sri Lanka: Rehabilitation of Transmission Line Jaffna (FC)	9.80
Uganda: Energy Policy Advice (TC)	1.40

Pilot / Sector - Programme: Household Energy Programme in the Rural Regions (TC)	1.91
Pilot / Sector - Programme: Promotion of Cooperation between African Nations in the Energy Sector (TC)	5.00
Pilot / Sector - Programme: Energy Policy Advice (TC)	1.00
Sum total energy efficiency (EE)	382.96
Sum total renewable energies and energy efficiency	938.28

Footnotes

1) Abbreviations:

FC Financial cooperation; TC: Technical cooperation

BCIE (Banco Centroamericano de Integración Económica): Central American Bank for Economic Integration

CAF (Cooperation Andina d' Fomento) supraregionally working Development Bank of the Andean Community

n. a. non-apportionable, i.e. transnational regional activities

SADC (Southern African Development Community): Angola, Botswana, DR Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe

2) The funds quoted are new commitments of ODA funds made under international law in official German development cooperation. In the case of composite financing they also contain market funds creditable as ODA.

3) This overview does not comprise the loan commitments within the Special Facility for Renewable Energies and Energy Efficiency 2005 - 2009 (cf. Annex II).

Annex II**Special Facility for Renewable Energies and Energy Efficiency 2005-2009**Loan commitments 2005 in EUR million

CAF ¹ : Renewable Energy and Energy Efficiency Programme II	30.00
Chile: Promotion of Renewable Energy and Energy Efficiency	30.00
Morocco: Rural Primary Electrification – Photovoltaic Systems II	10.00
Azerbaijan: Transmission Link Ashdrez - Imishli	30.00
India: REC Energy Efficiency Programme	70.00
Sum total renewable energies and energy efficiency	170.00

¹ CAF: (Cooperation Andina de Fomento) supregionally operating development bank of the Community of the Andean states