BRAZIL

1 CDM investment climate index: regional comparison

CDM investment climate index (CDM ICI), Latin America - November 2011 (excerpt)

Rank	Country	CDM ICI (max. 100 points)	Regional classification
1	Chile	93.8	Very good climate
2	Mexico	88.3	Good climate
3	Brazil	87.9	Good climate
4	Peru	85.8	Good climate
5	Costa Rica	81.5	Good climate
....	....	....	....
28	St. Kitts + Nevis	12.5	Unsatisfactory climate

Source: DEG - Deutsche Investitions - und Entwicklungsgesellschaft mbH
(For calculation method, see www.kyoto-coaching-cologne.net)

The CDM ICI measures the investment climate for CDM projects. It can range between 100 points (highest) and 0 points (lowest). Altogether, the climate is rated as 'good' in Brazil. The superior ranking of Chile and Mexico is due to the more favourable climate for private investments there, although this has improved considerably in Brazil over the last three years. The three countries are similar when it comes to the institutional environment for CDM projects.

2. General climate for foreign investments

General economic statistics 2008	
Population:	approx. 194.4 million inhabitants
Nominal GDP:	US$ 1,573 billion
Per capita GDP:	US$ 8,197
GDP growth (real):	+5.1% (IMF forecast for 2009: -0.7%)
Consumer prices:	5.7%
Goods exports:	US$ 197.9 billion
Goods imports:	US$ 173.2 billion
Foreign direct investments:	US$ 43.1 billion
Foreign debt (end of 2008):	US$ 310.0 billion (gross)
Currency reserves (end of 2008):	US$ 192.8 billion
Exchange rates (as at 1 Sept. 2009):	US$ 1 = R$ 1.88; EUR 1 = R$ 2.69
Country credit rating acc. to Institutional Investor (Sept. 2009)	65.3 out of 100 points (Rank 47 of 178, -0.5 points on previous year)
Corruption Perceptions Index 2008 (Transparency International):	3.6 out of 10 points (Rank 72; 10 = free of perceived corruption)

Locational advantages:
Strong domestic market, high propensity to consume, stable democracy, sound banking system, extensive natural resources and mineral deposits, advanced industrialisation, cultural affinity with Europe

Locational disadvantages:
High unemployment and social problems in conurbations, pronounced bureaucracy and intransparent administration, protracted judicial procedure, complicated system for goods imports with frequent high customs barriers, high taxes, shortage of skilled labour in some areas

3 Specific climate for CDM projects

3.1 Ongoing and planned CDM projects in the country

Brazil has firmly established itself as a major CDM location. With 164 out of 1,827 projects registered at the Executive Board (EB - UN body responsible for the international approval of CDM projects) worldwide, it held third position at the beginning of September of 2009, behind the PR China and India. It is the lead country in Latin America, accounting for 37% of the projects in the region. Certified Emission Reductions (CERs) have already been issued by EB for 92 of the registered projects. The CDM market has therefore made promising strides in Brazil since the last report in mid-2006.

Projects in Brazil registered by the CDM Executive Board as at September 2009

Project category	Project number	Estimated annual emission reductions up to 2012 (1,000 t CO_2e)
Biomass energy	43	2,203
Hydropower	34	1,845
Windpower	4	170
Landfill gas extraction and use	25	6,950
Methane gas prevention in pig farming	42	1,950
Industrial gases (N_2O, SF_6, PFC)	6	6,678
Fossil fuel switch	5	111
Energy efficiency in industry	2	139
Other	3	88
Total	**164**	**20,134**

CO_2e = carbon dioxide equivalent
Source: UNFCCC, UNEP Risø Centre

According to the Brazilian Designated National Authority (DNA), a total of 405 Project Design Documents (PDDs) have been submitted for validation by a Designated Operational Entity (DOE) since the introduction of CDM in Brazil (as at mid-August 2009). About 50% of these projects belong to the renewable energy category, 15% to methane gas avoidance in pig farming, 11% to fuel switching and 9% to the landfill gas sector.

According to the DNA, the expected annual reduction potential of these 405 projects in the period up to 2012 totals 46.2 million CO_2e. By far the largest ongoing project is N_2O emission

reduction in the adipic acid facility of the French company Rhodia at Paulínia in the federal state of São Paulo, which is supposed to save about 5.9 million t CO_2e a year up to 2012. At national level, the DNA approved 211 projects up to August 2009. Details of the individual projects with host country approval can be found on the internet page of the DNA (www.mct.gov.br/index.php/content/view/4016.html).

CDM projects with host country approval in Brazil as at 10 August 2009

Project category	Project number	Estimated annual emission reductions (1,000 t CO_2e)
Reduction of landfill gas emissions	27	10,264
N_2O emission reduction	5	6,374
Renewable energy	96	5,814
Pig farming	43	2,150
Industrial processes	5	790
Fuel switch	17	533
Waste	5	235
Energy efficiency	12	190
Other	1	35
Total	**211**	**26,685**

Source: CIMGC (DNA)

By far the biggest cause of greenhouse gas emissions in Brazil is deforestation. Till now, rain forest measures have only played a subordinate role in CDM both in Brazil and internationally, for several reasons. The presently approved methodologies for the calculation and monitoring of emissions avoidance are very complex and difficult to apply in practice. In addition, the EU has not permitted certificates from forest measures in its emissions trading. Presently, forest projects are primarily carried out for the so-called voluntary market in Brazil.

Besides renewable energies (cf. Point 3.6), experts also see CDM potential in the transport sector. There are opportunities both in goods traffic through a shift from road to rail or water and in the introduction of more efficient local public transport in the cities.

Another interesting field are landfill sites, partly due to numerous refuse scandals and problems with deposition and disposal. Kreditanstalt für Wiederaufbau (KfW) announced in July 2009 its purchase of certificates from the landfill operator Novo Gramacho in the federal state of Rio de Janeiro for 2.4 million t of CO_2 up to 2012. The project aims at reducing methane emissions from Brazil's biggest refuse dump and is ranked among the UNFCCC's top five in this category. CO_2 savings could amount to up to 6.4 million t of CO_2e by 2015. All large waste disposal sites in the country are now used for CDM. Future opportunities are afforded by urgently needed new dumps and additional measures at existing landfill sites in medium-sized and smaller towns. Pilot projects are also underway in pyrolysis, burning landfill gas. Burning or using gas emitted in wastewater treatment provides additional scope for CDM.

Little advantage has so far been taken of the enormous potential CO_2 reductions through raising energy efficiency in industry. In its country study on Brazil, GTZ sees good prospects for German technology providers in this area (available on the Internet at: www.jiko-bmu.de). The first larger-scale project was launched by ArcelorMittal for its Tubarão steelworks in the federal state of Espírito Santo. In this project, which has already been underway since 2004,

altogether 900,000 t CO_2e will be saved over ten years in the factory north of Vitória by using furnace gas for electricity generation. KfW purchased a part of the certificates for about US$ 5 million. AcelorMittal also harnesses additional savings potential in production and transport for CDM projects.

Of increasing interest for CDM is the programmatic approach (programme of activities - PoA) of bundling many small measures. At present, two Brazilian PoAs by the food producer Sadia are awaiting registration by EB for methane avoidance in pig farming.

Brazilian CERs are largely purchased by British, Dutch and Japanese buyers. Unilateral transactions are also arranged for many projects. The owners of CERs often wait to sell until after the certificates have been issued. Local legislation prescribes that state CDM certificates must be sold either on the stock exchange or via public auctions. Engaged here is the KfW Carbon Fund from Germany, which can also make advance payments for certificates to help cofinance projects.

3.2 Quality of the Designated National Authority (DNA)

The Interministerial Commission on Climate Change (Comissão Interministerial de Mudança Global do Clima - CIMGC) was appointed Designated National Authority (DNA) in 1999. The commission is made up of representatives of eleven ministries and is coordinated and chaired by the Ministry of Science and Technology. It specifies the selection criteria for approving CDM projects, appraises the projects and grants Host Country Approval when they qualify. It convenes every two months. Officially, it is supposed to take 60 days to appraise the projects after the first meeting after submission of the application. In practice, this takes a little longer. In the opinion of experts, the period the DNA needs for appraisal could be shortened further, although it does not exceed the international average.

The Brazilian DNA is considered to be relatively strict, partly because it has specified many additional conditionalities for national project approval, including, for example, the requirement that PDDs must already be validated before submission. The application must provide evidence of how far the project contributes to sustainable development in Brazil. The assessment applies environmental criteria and vets employment aspects, effects on working conditions, income distribution, technological progress and regional convergence. The Manual for Submitting CDM Project Activities provides information on the approval procedure and requisite application forms (available at www.mct.gov.br/index.php/content/view/37146.html).

Project developers criticise the many formalities of the Brazilian DNA for project approval. While the DNA argues that these higher standards reduce risks in subsequent project phases, ultimately ensuring a better price for developers, these blame the high approval hurdles for project delays, which can result in smaller emission reductions.

3.3 Local consultants, validators and verifiers

About 50 consultancy firms are engaged on the Brazilian CDM market at present. The first companies, such as Ecosecurities, EcoInvest (now Ecopart) and Econergy (now taken over by GDF Suez), which are all involved in renewable energies, still hold strong market positions. Other pioneers, who are both stepping up their activities at present, are AgCert (now owned by AES), which specialises in livestock projects, and the Instituto Ecologica (now taken over by

CantorCO2). Also more recent market players, such as Key Associados, Ativos Tecnicos e Ambientais, Ecogeo and Mundus Carbo are gaining in importance and could in the opinion of experts soon be targeted for takeovers, like many of their predecessors. A German enterprise has also ventured onto the market, Perspectives GmbH.

The main providers on the validation market are Det Norsk Veritas (141 validations), TÜV Süd (92) and SGS (86). Other Designated Operational Entities (DOE) engaged in the country are TÜV Nord, BV Cert and TÜV Rheinland. Several consultants pointed out that delays are possible in validation, because demand currently exceeds DOE capacity.

3.4 Local legal requirements for CDM projects and taxation aspects

The implementation of the DNA in 1999 and the so-called Resolution No. 1 of 11 September 2003 (Resolução No. 1 de 11 setembro de 2003) laid the institutional foundation for carrying out CDM projects in Brazil. The contents are posted on the internet page, www.mct.gov.br/clima.

Currently, there is no special legislation in Brazil that specifies the fiscal treatment of CDM projects or income from emission certificates. While experts in the sector are of the view that revenue generated from CDM projects is basically taxable, its fiscal status (e.g. goods, services or imports) has still not been definitively settled. An analysis of the present legislation by the the legal firm, Attie & Ramires Advogados, in São Paulo has been published in Portuguese at http://jus2.uol.com.br/doutrina/texto.asp?id=7307.

The financial market regulator CVM (Comissão de Valores Mobiliários) under the purview of the finance ministry ruled out the classification of CO_2 certificates as a security and the related fiscal treatment in mid-2009. The authority says these are financial assets issued abroad. Their derivatives, particularly for pre-financing CDM projects, however, may be considered as securities on a case-by-case basis.

3.5 CDM partnership agreements (Memorandum of Understanding)

According to the Brazilian Foreign Ministry, international partnership agreements have been concluded with Canada, the Netherlands, Italy, Spain, France, Portugal, Denmark, Finland and Norway. During the visit to Brazil by German Chancellor Angela Merkel in May 2008, Germany and Brazil also agreed on broad cooperation in renewable energies and energy efficiency. Details on the agreements are available on the homepage of the ministry: www.mre.gov.br.

3.6 Opportunities for CDM projects in the energy sector

In 2008, Brazil's primary energy demand increased by 5.3% on the previous year. To avoid supply bottlenecks, there is a need to expand power generating capacities by a large margin. Brazil can draw on extensive reserves of fossil fuels and has excellent natural conditions for the use of renewable energy. Thanks to hydropower and biomass, it already records one of the highest shares of renewable energies in the energy mix worldwide.

Due to the large hydropower ratio in electricity generation, the CDM potential in the energy sector is less than in countries whose power supply depends heavily on coal, because the

baseline for CO_2 savings is less favourable. New generating capacity has recently been installed, however, primarily with oil and gas power stations. The government requires the operators of the new power stations to compensate for the resultant greenhouse gas emissions with climate protection projects.

Since July 2008, a uniform emission factor serves as baseline for power generation projects connected to the nationwide electricity grid (on this see: www.mct.gov.br/clima).

Energy and environmental data

	Brazil	Latin America	OECD
Primary energy supply (Mtoe 2008)	251.5		
of which from renewable energy sources[1)]	45.4%		
Electricity consumption (TWh 2008)	429.7		
of which from renewable energy sources[2)]	77%		
CO_2 emissions from fuel combustion (Mt, 2007)	347.09		
Electricity consumption/capita (kWh/capita, 2007)	2,154	1,838	8,477
CO_2/Primary energy supply (t of CO_2/toe, 2007)	1.47	1.85	2.37
CO_2 per capita (t of CO_2 per capita 2007)	1.81	2.21	10.97
CO_2/GDP (kg of CO_2/US$, purchase power parity 2000; 2007)	0.22	0.27	0.40

1) 13.9% hydropower, 31.5% biomass, 2) approx. 73% hydropower, 4% biomass (incl. 557 GWh from windpower)
Sources: Ministério de Minas e Energia, IEA

Almost half of the registered CDM projects belong to the renewable energies category. Of particular relevance for the Mechanism is the use of large amounts of sugarcane bagasse as an energy source and electricity generation from small hydropower stations. Prospects are good for CDM projects in these segments. Large hydropower stations, which unlike small facilities need an environmental licence, are also seeking registration as CDM projects, the large-scale stations under construction at the Rio Madeira, for example. Agriculture and industry will also offer possibilities for biomass and biogas energy production in future.

Experts consider the natural conditions for windpower and solar energy to be promising, although they have been put to little use in the country till now. Now phasing out, the funding programme, Proinfa, was less successful for windpower than expected. The first of several planned windpower auctions in December 2009 held by the energy ministry is expected to give a fresh impetus. Solar energy, in contrast, is given currently scant attention as a policy issue. GTZ anticipates greater CDM activity in both sectors in future.

CDM projects are heavily under-represented in the northern and the northeastern regions of the country, because energy projects have not been worthwhile due to the comparatively small prospective CO_2 reductions. The uniform baseline could make these regions more interesting. Many project analysts now see a good opportunity for biomass and small hydropower stations there. In addition, the northeastern states of Ceará and Rio Grande do Norte offer the best natural conditions for windpower.

3.7 Local finance facilities for CDM projects

Besides the national development bank, BNDES, which sponsors CDM projects via the fund, Fundo Brasil Sustentabilidade (FBS), local commercial banks are showing keener interest in this type of investment too and are setting up new funds. The Santander Group announced in July 2009 that it will be providing EUR 50 million for CDM projects in Brazil, Chile and Mexico. Since 2007, the Bradesco bank has been cooperating with the Japanese bank, Mitsubishi UFJ, and provides a credit line to finance CDM projects as of April 2009. Itaú-Unibanco and Banco do Brasil also include CDM projects in their portfolio.

The Deutsche Investitions - und Entwicklungsgesellschaft (DEG) offers private enterprises finance for investment projects in Brazil on commercial terms (in the form of long-term loans, mezzanine finance, equity and guarantees). Through its climate protection network, Kyoto Coaching Cologne (KCC), DEG can also draw on know-how and partners to provide support in the CDM registration procedure. Moreover, DEG can cofinance certain project activities with special developmental impacts under the PPP Programme of the Federal Ministry for Economic Cooperation and Development (BMZ) with up to EUR 200,000.

4 Recap

If a Kyoto sequel agreement continues the CDM mechanism beyond 2012, Brazil ought to remain a key location for CO_2 reduction projects thanks to its enormous natural resources, its large agro-business sector and its industrial density. It will nevertheless be unable to match the attractiveness of the CDM leaders, the PR China and India, since unlike its competitors, who rely heavily on fossil fuels, it generates two-thirds of its electricity from hydropower, making for an unfavourable baseline in the power sector. Experts, however, judge the prospects for projects in renewables as promising, particularly in various segments of bioenergy and windpower.

Other growth fields are energy-efficiency measures in industry and projects in the waste sector. Market experts also see opportunities in Brazil for smaller projects, including those that multinational firms can use as marketing instruments for their sustainability image.

German enterprises are in demand in the Brazilian CDM sector as providers of energy-efficient technologies.

5. Advice/Service

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