

Climate Change and CDM Activities

Benin ratified the Kyoto Protocol on 25 February 2002, after having ratified the UNFCCC itself in 1994. The steps taken to implement its commitments under these treaties are *inter alia* as follows:

- Initial National Communication on Climate Change, adopted by the government in 2002.
- Adoption of a National Strategy for Implementing the UNFCCC with the object of reinforcing Benin's national capacity to this end.
- Launch of a National Action Programme of Adaptation (NAPA) to climate change.
- Launch of a project to reinforce capacities to improve the quality of the greenhouse gas inventory in French-speaking West and Central Africa.
- Decree issued on 30 April 2003 on the establishment, powers and functioning of the National Committee on Climate Change.
- Signature of decree on 29 December 2003 on the nomination of members of the National Committee.
- Decree of 9 July 2003 on the allocation of responsibility for the focal points of the conventions and protocols to the Ministry of the Environment, Settlement and Town Planning.
- A CDM technical team has been set up, and the designated CDM National Authority has been placed under the authority of the Ministry of the Environment, Settlement and Town planning.

Benin has inaugurated a CDM project with the title Village Reforestation and Carbon Sequestration under the auspices of the Directorate of Forests and Natural Resources. This project, which has still to be fully developed, is a response to the needs of villages for timber and fruit, a means of reducing pressure on the natural forests, and is planned with an eye to future demographic developments. It is intended that it will be implemented in collaboration with the World Bank.

Criteria for Sustainable Development

In order to establish the parameters of its development, Benin has initiated a number of studies and programmes. The objective of all of these documents is the same, namely, sustainable development. The Strategy Document on the Reduction of Poverty sets a target date of 2015 for the achievement of its quantitative goals. These are:

- Reducing the proportion of the population living in poverty from 30% in 2000 to 15% in 2015.
- Raising expectation of life from 54 years in 2000 to 65 years in 2015.
- Reducing infant and juvenile mortality from 165/1000 in 1998 to 90/1000 in 2015.
- Halving the number of persons suffering from malnutrition.
- Increasing the number in primary education from 81% in 2000 to 99% in 2015.
- Access to hygienic reproductive services for all through primary health care.
- Diminishing the prevalence of AIDS and other sexually transmitted diseases.

These are the fundamental criteria that will be used to determine CDM projects. To these have to be added the UN Millennium Goals for Development, in particular numbers 1, 7 and 8. Certain other criteria for CDM projects are being studied by national actors, including:

- Environmental: No negative impact on the environment, e.g. pollution of the ambient air, etc.
- Economic: Technology transfer, increase in employment, use of clean technologies, etc.
- Social: Promotion of clean technologies in the household, participation by the actors concerned, reduction of local poverty, etc.

A participative and multidisciplinary approach is foreseen for the assessment of projects by the designated National CDM Authority. There is a preliminary definition of the criteria for sustainable development which may be taken into consideration here. The project must provide clear answers to this, with a precise definition of its objectives and its contribution to sustainable development judged on a basis of multiple criteria.

Constraints to CDM Adoption

The CDM holds out an opportunity for the industrial countries to invest in developing countries while fulfilling their own obligations under the Kyoto Protocol. The barriers to an effective realisation are not due to a lack of political will, but to the following amongst others:

- Insufficient information accessible to a majority of actors. Most information on the CDM is in English, whereas the official language in Benin is French.
- The complexity of the project cycle under the CDM, which differs from the classic project, especially as regards base lines and environmental additionality.
- The difficulty of obtaining the reliable statistics necessary for planning CDM projects, due to a lack of the relevant archives and procedures for updating an inventory of greenhouse gases and identifying the key sources.
- A lack of national expertise. This is restricted to a small circle of persons who have been able to take part in sub-regional or international CDM seminars.
- The dispersion of the energies of the CDM actors over a range of professional activities, which hinders them from giving it their full attention.
- The high cost of elaborating and implementing CDM projects.
- The insufficiency of the financial and material resources allocated to the promotion of CDM projects, thereby reducing the country's potential in this respect.

National Stakeholders

The institutions in Benin with a part to play in the CDM are the public sector (government and university), non-governmental organisations, and the private sector. At government level the agencies involved are the Ministry of the Environment, Settlement and Town Planning; the Ministry of Agriculture and Fisheries; the Ministry of Commerce, Industry and Employment; the Ministry of Planning and Development; and the Ministry of Finance and the Economy.

The University Faculty of Agricultural Sciences and the Department of Geography of the Faculty of Arts will have roles to play, as will the Benin 21 and OFEDI NGOs. The private sector is represented by the Benin Chamber of Commerce and Industry.

CDM Potential in the Industrial and Energy Sectors

Benin's industrial structure consists of around 300 firms, dominated by some 30 large concerns engaged in the textile, building materials, foodstuffs and chemical sectors. Total carbon emissions in Benin were 0.0074 million tonnes in 1990, 0.0128 mt in 1998, and 0.0204 mt in 2000. On a per capita basis the figures were 1.62 kg in 1990, 2.2 kg in 1998, and 3.32 kg in 2000, which compares more than favourably with the global average of 1130 kg per capita.

The proportion of households with access to electricity rose from 14.3% in 1997 to 19% in 2000, but it is still a long way short of total electrification. It is nevertheless hoped that the development of new technologies and renewable energy will contribute to the achievement of this goal.

In 2000 Benin's total energy consumption was 70,644,571 GJ, of which 48,740,381 GJ was biomass, around 70% of the total. Non-renewable energy carriers constituted 30% of the total in 2000, up from 21.7% in 1990. All petroleum products consumed in Benin are imported.

Of the total energy consumed, 32.67% is imported, including illegal imports. This indicates not only the country's energy dependence, but also its vulnerability to the fluctuating price of oil as well as the dollar exchange rate. It also indicates that consumption of imported non-renewable energy carriers is increasing by comparison with the use of indigenous renewable sources. Energy efficiency in 2000 remained far below the international average.

There is very high energy waste in the household sector, which accounts for 64% of total energy consumption, in contrast to the productive industrial sector, which consumes no more than 4% of the total. Consumption of renewable energy went down from 71.16% in 1999 to 70.42% in 2000, due not least to the establishment of the ORIX group, which has promoted the use of butane gas. On the other hand, increased use of butane will reduce pressure on the country's vegetable cover.

It should be pointed out that Benin has an estimated energy potential of some 900 MW, and that the demand for electrical energy is rapidly increasing at an annual rate of 6.11% to an estimated 709 Gwh in 2010. In view of all these factors, the two options for CDM projects would appear to be:

1. A network of small hydro-electric plants covering the whole country.
2. Increased energy efficiency in the industrial sector.

A possible third CDM project could deal with reducing greenhouse gas emissions in the motorised transport sector.

Conclusions and Recommendations

Industrialisation in Benin remains weak in view of the country's overall level of development. This is reflected in the consumption of energy, which in 2004 was distributed thus: households 66%; transport 19%; services 12%; and industry 3%. It can thus be seen that industry, far from being a major emitter of greenhouse gases, actually lies behind agriculture in this respect. Emissions by the industrial and energy sectors are therefore very small, although this does not signify that they are entirely clean and have no need to benefit from CDM projects. Most emissions, such as they are, come from the textile and agro-foodstuffs sectors.

From the foregoing it will be seen that Benin needs to expand its energy potential while diversifying the sources of its provision. In this respect the first choice should be the development of hydro-electricity as well as other renewable forms of generation like solar and wind power. CDM projects can therefore be implemented to remedy energy wastage, especially in the transport sector, stimulate a more rational use of energy by industry, and develop a network of small hydro-electric plants throughout the country.