



## Project Brochure

# CD4CDM

## Capacity Development for the Clean Development Mechanism

### Background

The purpose of the Clean Development Mechanism (CDM) is to assist developing countries achieve sustainable development, and to assist industrialized countries achieve compliance with their emission targets under the Kyoto Protocol (KP) through the acquisition of certified emission reductions accruing from project activities implemented under the partnership between developed and developing countries. Such project activities are expected to mobilize financial and technological resources from private sectors in industrialized countries to promote sustainable development in developing countries, and contribute to the ultimate objective of the UNFCCC.

The CD4CDM project is designed in line with the emphasis in the decision on full utilization of national and regional institutions and “learning by doing” combined with a large element of experience sharing ([www.cd4cdm.org](http://www.cd4cdm.org)), ([www.ceest.co.tz](http://www.ceest.co.tz)) ([www.epmstanza.org](http://www.epmstanza.org))

The UNEP RISOE Centre launched the project in Tanzania in early 2007 with financial support from the Dutch Government. CEEST Foundation and EPMS are the local partners implementing the project in Tanzania. The project is intended to help to establish CDM projects that are consistent with national sustainable development goals, particularly projects in the energy sector. It will develop national capabilities so that at the project’s conclusion there are persons in the country that are capable of analyzing the technical and financial merits of projects and negotiating possible finance agreements with investors.

### Project Objectives

- ✓ Improving Tanzania’s institutional preparedness for hosting CDM projects, including kickstarting Designated National Authority (DNA) ability to efficiently approve CDM projects consistent with the country’s sustainable development priorities.
- ✓ Building the capacity of local experts in key sectors in the identification, design, and implementation of CDM projects.
- ✓ Building the capacity of relevant institutions in appraising, funding, and promoting CDM and carbon offset investments.
- ✓ Promoting Tanzania as a CDM investment destination.
- ✓ Supporting the development of a pipeline of actual CDM projects.

### CDM opportunities in Tanzania

All projects that reduce greenhouse gas emissions (GHGs) such as carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxides (N<sub>2</sub>O) are potentially eligible; only nuclear power technologies are excluded from CDM eligibility. Some projects are given fast-track prioritization, and subject to lower transaction costs. This applies to small-scale renewable energy and energy-efficiency projects of less than 15 megawatts, energy efficiency projects less than 60 GW hrs/year, or other projects displacing less than 60 kilotons of CO<sub>2</sub> per year.

Tanzania has developed an inventory for greenhouse gas (GHG) emissions covering the following sectors: energy, agriculture, industrial processes, waste management, forestry and land use.

The energy sector in Tanzania covers the non-commercial primary energy sources (mainly wood-fuels) and commercial energy (petroleum, natural gas, hydroelectricity, coal and some geothermal energy sources). Both Tanzania’s energy supply and end-use structure reflect her low level of development. Biomass-based fuel accounts for 92 per cent of the total energy consumption and the rest is mainly petroleum and hydroelectricity. The country has considerable biomass resources in the form of forest and agricultural residues. Indeed, there is an economic possibility of converting these resources under CDM activities into electricity and energy for industrial and domestic purposes. However, limited forest and agricultural residues are being used for electricity and mechanical power generation as well as fuel wood substitute in various parts of the country.

Coal and natural gas are the other commercial fuels with a high potential. Coal reserves are estimated at about 1,200 million tones, of which 304 million tones may be considered proven. A field of 29.02 million cubic meters of proven, probable and possible recoverable high quality natural gas has been discovered at Songosongo.

Hydroelectric energy is the most important indigenous source of commercial energy with a potential of 4.7 GW of installed capacity and about 3.2 GW of firm capacity. Only 15 per cent of installed capacity has been developed. Solar, wind and geothermal energy are virtually untapped resources; these are the potential fast-track CDM projects in Tanzania.

Given the importance of sustainable development in the CDM approval process, social considerations and public participation should be an important element of CDM projects. Project developers should attempt to address barriers such as reluctance by local financial institutions to lend money to projects using new energy technologies.

### Fast potential CDM project activities in Tanzania

Sector	Project activity	Description
Energy supply	Advanced electricity Generation technologies	Install 230 MW of combine-cycle power plants instead of simple cycle gas turbine
	Charcoal production	Improving the conversion efficiency of charcoal kilns
	Coal mining	Optimizing Methane release from coal mining
	Renewable Technologies	Use solar collectors, photovoltaic cells, wind turbines, and biomass energy sources.
Industry	Cement production	Installation of automatic control systems for reducing the amount of fuel used and improving production efficiency.
	CO <sub>2</sub> recovery system	Installation of CO <sub>2</sub> recovery systems. Recovered CO <sub>2</sub> can be used for other industrial applications.
	Fuel switching	Substitute natural gas for fuel oil in two production plants



	Production mix	Produce blended cements such as pozzolanic cements, blast furnace, slag cement, and Portland cements in order to reduce the amount of fuel used for calcinations and the amount of lime used per unit of cement produced
	Pulp and paper Efficiency improvement	Optimize the recovery boiler in order to reduce both the amount of lime and energy used.

Transportation	Urban transport	Restructure public transport and introducing City trains in Dar es Salaam
	Fuel substitution	Use of Compressed Natural Gas (CNG) vehicles
	Fuel switching	Use renewable energy; biodiesel, biogas, ethanol-petrol blend and fuel cell
Household and Services sectors	Cook stoves	Projects that increase the efficiency biomass cook stoves
	Fuel switching	Population to switch from wood Fuel to charcoal to improve cook stoves and/or Liquefied Petroleum Gas (LPG)
Agriculture and Livestock	Agricultural practices	Reduce methane and carbon emissions through better fertilizer application, rice cultivation, and loss of organic Carbon from cultivated soils.
	Livestock husbandry	Better husbandry, including better breeding and feeding Projects
Land-Use and Forestry Sector	Forest management	Maintaining existing stocks through forest protection and conservation; and expanding carbon sinks by means of afforestation, reforestation, and enhanced natural regeneration and agro forestry Projects.
	Grassland and rangelands	Maintaining or increasing carbon sequestration through better soil management and sustainable agricultural projects.

### The appropriateness of CDM Investment in the energy sector

- ✓ Only 6% of the population has access to electricity;
- ✓ The rural population is almost entirely dependent on wood for fuel and spends about 20% of their day collecting firewood;
- ✓ Deforestation stands at between 90,000 and 300,000 hectares per annum;

- ✓ Government supports investments in alternative sources of energy, renewable energy, fuel switching, energy supply and demand side efficiency, etc.

One purpose of the CDM is to assist developing countries to achieve sustainable development. The Tanzania Government is responsible for screening projects according to these criteria, excluding those not consistent with its sustainable development goals. Sustainable is a broad concept that includes environmental sustainability, economic development and social equity. CDM projects to be undertaken in Tanzania must support the Tanzania Vision 2025 and MKUKUTA 2005 on poverty alleviation issues. Tanzania has a development ambition of transforming the country to a semi-industrialized economy led by modernized and highly productive agricultural activities, which are effectively integrated and buttressed by supportive industrial and service activities in the rural and urban areas by 2025.

### Contribution of CDM activities to the socio-economic development of the country

CDM activity has a potential role to play in the socio-economic development in the country. The CDM activities will attract capital investment to Tanzania. Crucial benefits that will accrue from CDM activities include:

- Sustainable industrial development;
- Poverty reductions through improved and increased rural income, hence improved livelihoods of the people;
- Employment opportunities to the community;
- Capacity building in various areas;
- Availability of affordable and reliable electricity to the rural communities;
- Improvement of social services such as education and health; and
- Enhancement of technological transfer and development.

### CD4CDM Project Outcomes

- ✓ Inputs to DNA Statutory Regulation and Cabinet Paper/National CDM Action Plan
- ✓ One Parliamentary briefing and one Ministerial luncheon briefing, and summary reports of the proceedings with recommended actions
- ✓ Operational Guidelines for DNA and its sub-committee members
- ✓ Support DNA and TIC on CDM investment promotion
- ✓ National CDM website: design, hosting, updating and maintenance

- ✓ Capacity building for developers (public and private) and financial sectors (i) Three national workshops, (ii) Five targeted mini-workshops
- ✓ Up to 10 PIN(s) meeting quality criteria with respect to Grid-Based Electricity Generation, and Projects;
- ✓ Up to 4 PIN(s) meeting quality criteria with respect Industrial Energy Efficiency, Fuel-Switching, and Process Changes. These should lead to obtaining up to 2 validation quality PDDs
- ✓ Two (2) Project mini-workshops held, with summaries of the proceedings to be integrated into Project progress reports
- ✓ General newspaper articles or radio segments for public awareness-raising

### Profile of Participating Institutions

The Centre for Energy, Environment, Science and Technology (**CEEST Foundation**) is a registered Non-Government Organization based in Dar es salaam, Tanzania conducting and specializing in Environment, more especially in Environment Impact Assessment, Environmental Audits, Environmental Policy and Planning, Energy and Natural Resources Conservation. ([www.ceest.co.tz](http://www.ceest.co.tz))

The **Environment Protection and Management Services (EPMS)** is a professional environmental consulting firm dedicated to working with both national and international partners on issues related to environment and sustainable development. ([www.epmstanzania.org](http://www.epmstanzania.org))

### Contact addresses:

CEEST Foundation  
Kaunda Road, Block No. 17, Oysterbay  
P. O. Box 5511,  
Dar es Salaam, Tanzania  
Tel: 255-22-2667569,  
Fax: 255-22- 2667569  
E-Mail: [ceest@ceest.co.tz](mailto:ceest@ceest.co.tz)  
Website: [www.ceest.co.tz](http://www.ceest.co.tz)

EPMS  
Nkrumah Street, Lida House 1<sup>st</sup> Floor,  
P.O. Box 7775, Dar Es Salaam, Tanzania  
Tel: +255 22-2120429,  
Fax: +255 22-2120429,  
E-mail: [epms@bol.co.tz](mailto:epms@bol.co.tz)  
[www.epmstanzania.org](http://www.epmstanzania.org)

UNEP Risoe Centre  
Risoe National Laboratory,  
Bldg. 142, Frederiksborgvej 399  
P.O. Box 49, DK 4000 Roskilde  
Denmark  
Email: [urc@risoe.dk](mailto:urc@risoe.dk)  
Website: [www.cd4cdm.org](http://www.cd4cdm.org)