



CDM FINANCING FOR FUTURE GEOTHERMAL PROJECTS IN KENYA

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ABSTRACT

The purpose of the Clean Development Mechanism (CDM) shall be to assist developing countries in achieving sustainable development, and to assist developed countries in achieving compliance with their quantified emission limitation and reduction commitments. The Clean Development Mechanism (CDM) allows emission-reduction projects in developing countries to earn certified emission reduction (CER) credits, each equivalent to one tonne of CO₂. These CERs can be traded and sold, and used by industrialized countries to meet a part of their emission reduction targets under the Kyoto Protocol.

The projects must qualify through a rigorous and public registration and issuance process designed to ensure real, measurable and verifiable emission reductions that are additional to what would have occurred without the project. The mechanism is overseen by the CDM Executive Board, answerable ultimately to the countries that have ratified the Kyoto Protocol.

1. INTRODUCTION

Operational since the beginning of 2006, the CDM mechanism is anticipated to produce CERs amounting to more than 2.7 billion tonnes of CO₂ equivalent in the first commitment period of the Kyoto Protocol, 2008–2012.

The mechanism is seen by many as a trailblazer. It is the first global, environmental investment and credit scheme of its kind, providing standardized emissions offset instrument, CERs.

Towards this end, KenGen has made tremendous efforts in developing its projects through CDM funding. The efforts started in earnest in 2005 when discussions were held with various potential buyers, such as World Bank.

CDM Projects must:

- Be implemented in a non-Annex 1 country that is a party to the Kyoto Protocol.
- Be additional to what would occur in the absence of the project activity.
- Support sustainable development in the host country.

- Obtain approval of the host country's Designated National Authority for the CDM.
- Result in real, measurable, long-term climate change benefits.

CDM Projects must not divert Official Development Assistance (ODA) or involve nuclear power.

Projects covered under the CDM include renewable energy, energy efficiency, fossil fuel switch, waste management, N₂O removal, SF₆ recovery, transportation and others. Geothermal energy therefore qualifies as a CDM project since it is a renewable energy resource.

2. STATUS OF KENGEN CDM INITIATIVES

KenGen's interest in CDM started in 2000 when the company wrote to the UNFCCC, through the Ministry of Environment seeking support in obtaining benefits from CDM for some of the projects. However, not much progress was made. In 2005, KenGen submitted several project proposals to the Government of Belgium CDM Tender. The Tana Redevelopment project was pre-qualified among 14 short listed projects from developing countries. In early 2006 discussions were held with the Japan Carbon Fund who had shown interest in a number of the projects. The constraint that has hampered progress with the Belgium and the Japan Governments' funds is that they require KenGen to incur the costs for the whole documentation processes before they can consider the projects into their portfolio. As this would incur rigorous costs for KenGen, pursuing projects with the governments of Japan and Belgium was not a viable option at that time.

In 2006 KenGen and The World signed an emission purchase reduction agreement (ERPA) for the development of five projects under the CDM funding process. The following projects were approved by the World Bank;

1. Olkaria II Geothermal Expansion Project.
2. Redevelopment of Tana Power Station Project.
3. Optimisation of Kiambere Power Project.
4. Kipevu Combined Cycle Power Project.
5. Sondu Miriu Power Project.

Two projects were dropped; Sondu Miriu Power Project and Kipevu Combined Cycle Power Project. Sondu was dropped since it could not pass the eligibility criteria of the UNFCCC due to its pre-2000 start date, while Kipevu Combined Cycle Power Project was dropped since KenGen made a decision not to go ahead with the project. The remaining 3 projects are currently under validation and they are expected to contribute to a reduction of about 200,000 tonnes of CO₂ equivalent annually. It is anticipated that they will be registered by June 2010.

3. POTENTIAL FUTURE CDM GEOTHERMAL PROJECTS

Studies have indicated that the Kenya's Rift Valley has vast geothermal resources with potential estimates of 4000-7000 MW_e of electricity.

In addition to the 35 MW_e geothermal expansion project which will be commissioned in May 2010, KenGen is developing two more geothermal projects, Olkaria IV and Olkaria I units 4 & 5 power stations under the CDM financing. These scheduled to be commissioned in late 2012 and early 2013, will add to the grid 280 MW_e electricity, with estimated CO₂ reduction of one million tonnes annually.

KenGen's strategy for future capacity expansion is focussing on geothermal development. After Olkaria IV and Olkaria I units 4 & 5 power plants constructions, the plan intends to increase its

geothermal capacity by over 1000 MW_e by 2019. These will contribute significantly towards greenhouse gas reductions of about 3.9 million tonnes of CO₂ annually.

3.1 Contribution of Geothermal Projects to Sustainable Development

Geothermal projects will contribute to national sustainable development through the following:

Sustainable clean energy: The provision of renewable clean energy is a major factor contributing to sustainable development in Kenya through improved environmental quality, positive health impacts and increased productivity. Also, increased power availability will create more opportunities for expanded rural electrification with far reaching impacts on job creation and improved livelihoods in the rural areas. The Kenyan grid is currently dominated by hydroelectric sources. The major hydro sources have been unreliable due to irregular inflows into Masinga (the main reservoir dam – see Figure 1).

Decreased dependence on fossil fuels: Kenya is the first African country to tap geothermal power. Significant geothermal potential exists in the country’s Great Rift Valley which could easily double the entire grid capacity of the East Africa region, but exploration is costly. Nonetheless, geothermal projects will make positive contribution to the country’s implementation of its energy strategy which aims to reduce energy from thermal sources and increase energy from renewable sources. Kenya’s dependence on imported crude petroleum can be reduced significantly. This may result in considerable foreign exchange savings that can be committed to other economic activities.

Assistance in community programs: While the sale of the CERs generated by the projects will boost production of clean energy in the country, it will also assist poor rural communities in the project area through implementing community programs funded by carbon revenues.

However, it is worthwhile to note that these projects will come on-stream after 2012 and financing of the through carbon emission reductions will largely depend on the outcome of negotiations for post 2012.

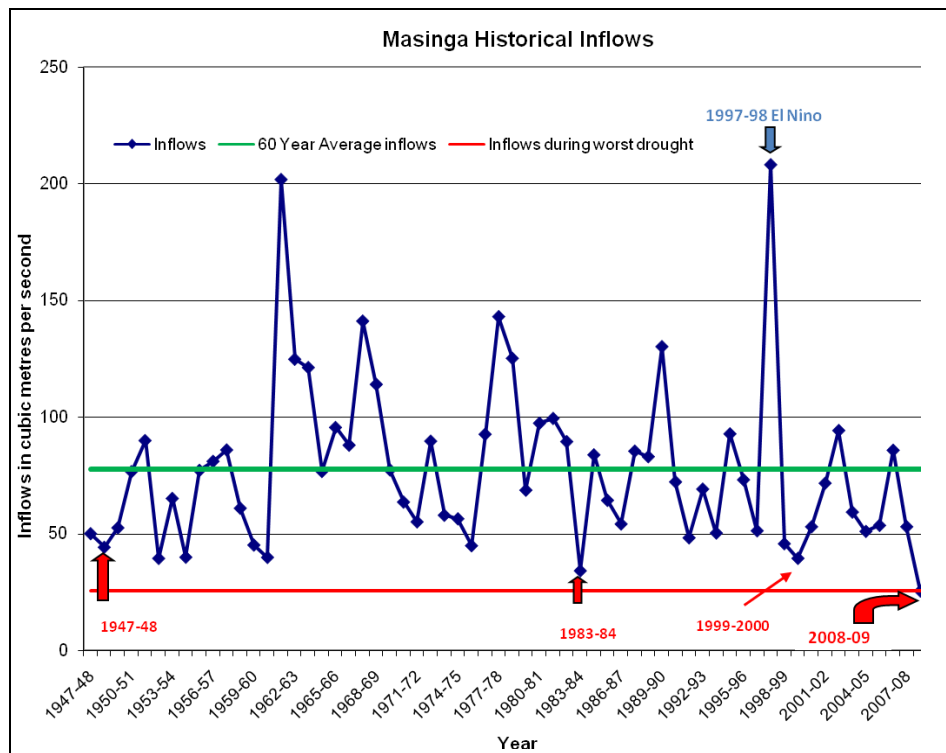


FIGURE 1: Historical inflows into Masinga Reservoir

4. CONCLUSIONS AND RECOMMENDATIONS

Development of geothermal projects in Kenya faces a number of barriers and these can be partly offset by CDM revenues.

Developing geothermal projects in the country will reduce Kenya's over reliance of its hydro resources which are affected by vulgarise of weather.

Since geothermal resources are indigenous, developing of the projects will lead to less reliance by the country on expensive and polluting fossil fuels.

There is Need to follow post 2012 negotiations so as to take advantage of any market instrument that could be agreed upon.

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