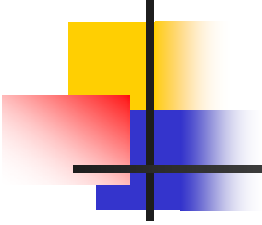


CDM SUSAC Investors Workshop



Meridien Hotel, Frankfurt, Germany
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TAZAMA Pipelines Ltd Project

Prof. F. D. Yamba and Mr. E. Matsika

Centre for Energy, Environment and Engineering Zambia

Private Bag E721

Lusaka

ZAMBIA

Tel/Fax: +260 - 1 - 240267

Email: yamba@eng.unza.zm



PROJECT OBJECTIVES

The main objective of the project is to replace 2 X 6 crude oil / diesel pumping stations along TAZAMA Pipeline – along a distance of 1700 km from Dar-es-alaam in Tanzania to Zambia aimed at:

- ☐ Eliminating environmental pollution caused by diesel engine prime movers of crude oil pumps discharging CO₂ and soot into the air and to reduce noise levels produced
- ☐ Improving operational efficiency of main pump drivers by way of introducing the hydro-electric drive
- ☐ Reducing overhead operational and maintenance costs of main pump units by using hydro based electricity in place of gas oil/crude oil as propellant



PROJECT LOCATION

- ❑ **Along TAZAMA Pipeline pump stations (Kigamboni, Morogoro, Iringa, Mbeya (Tanzania), and Chinsali and Kalonje (Zambia) covering a distance of 1700km.**



TYPE OF PROJECT

☐ **Energy substitution/Renewable energy**



PROJECT DESCRIPTION

- ❑ Installation of 2 x 400 HP, 3-Phase, 660V, 50 Hz, motors at each station with 93% efficiency and power factor of 0.95 corrected.



PROJECT BASELINE

- ❑ Business as usual scenario involves continued use of crude oil/diesel pumping stations at each station in the next 15 years or so
- ❑ BAU scenario also includes transportation of diesel used for crude oil pumping, from Ndola to the pump stations, a total distance of 1700km.
- ❑ The projected amount of CO₂ for 15 years amounting to 259, 746 tonnes CO₂.



ENVIRONMENTAL ADDITIONALITY (1)

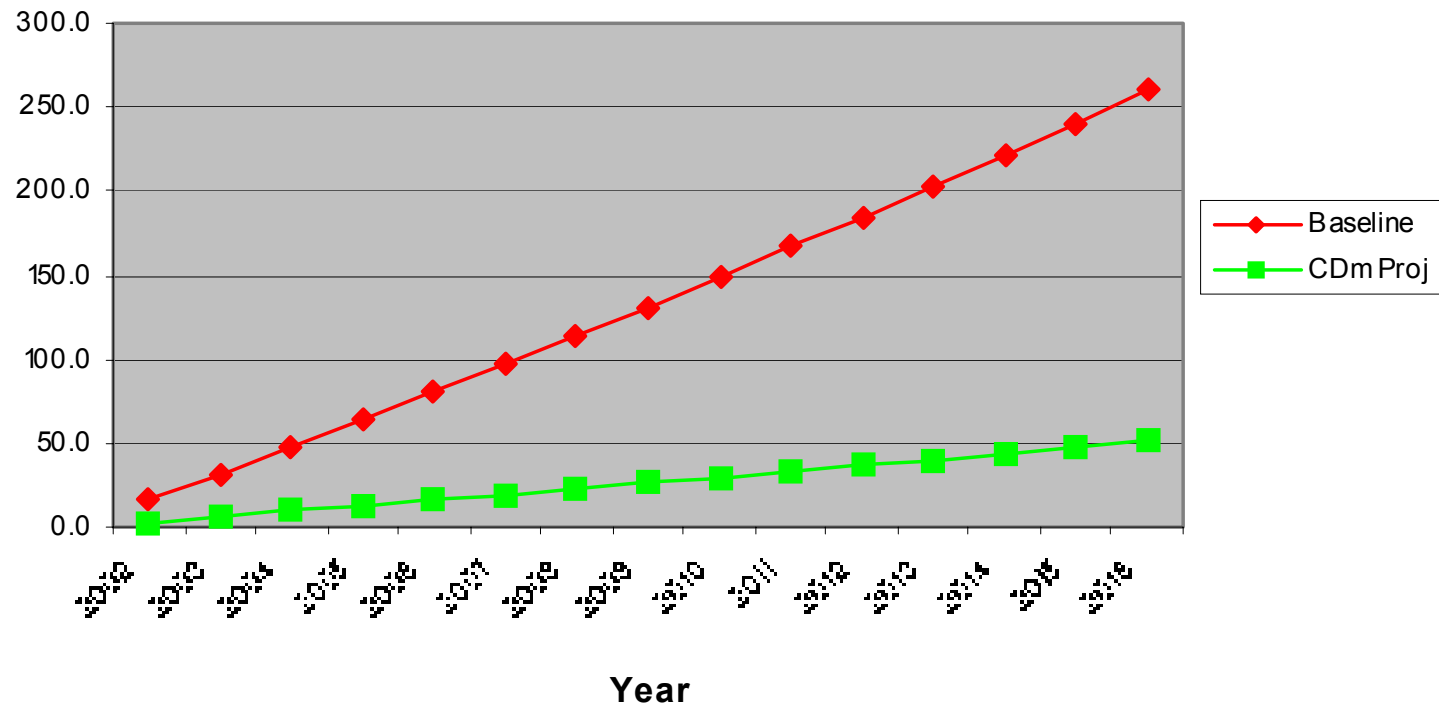
- ❑ In the absence of the project, there would be continued exhaustion of CO₂ into the atmosphere & increased local air pollution. Replacement of diesel pumping engines at each station will lead to partial reduction of CO₂ by 208,175 tonnes in 15 years as follows portions:

2002 – 2008	91.383 tonnes
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2009 – 2016	116.792 tonnes
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ENVIRONMENTAL ADDITIONALITY (2)

Baseline and Mitigation Vs Time (TAZAMA)





SUSTAINABLE DEVELOPMENT

☐ Combination of Rating, and Normal ranking was used

☐ Results:

INDICATOR	MARKS OBTAINED	REPRESENTATIVE WEIGHTING (%)	TOTAL (%)
Economic	52.4	38	27.66
Environmental	38.2	33	28.01
Social	32	29	14.73
Total			70.4

NB: 70.4% > 55%, therefore, the project is eligible for CDM



PROJECT ECONOMICS (1)

1. With 50% Down payment for carbon credits

Scenario	Marginal Costing (US\$/t CO ₂)	IRR (%)	NPV (US\$ million)	Net Cumulative Balance (US\$ million per annum)
BAU (with Investment in energy substitution)	-457.07	13.24	4.199	75.707
With CERs at US\$5 per tonne	-457.07	15.18	11.49	97.997
With CERs at US\$10 per tonne	-457.07	15.39	12.17	99.038
With CERs at US\$15 per tonne	-457.07	15.61	12.85	100.079
With CERs at US\$20 per tonne	-457.07	15.83	13.53	101.120



PROJECT ECONOMICS (2)

2. With 100% Down payment for carbon credits

Scenario	Marginal Costing (US\$/t CO ₂)	IRR (%)	NPV (US\$ million)	Net Cumulative Balance (US\$ million per annum)
BAU (with Investment in energy substitution)	-457.07	13.24	4.199	75.707
With CERs at US\$5 per tonne	-457.07	15.28	11.76	97.998
With CERs at US\$10 per tonne	-457.07	15.61	12.71	99.039
With CERs at US\$15 per tonne	-457.07	15.95	13.65	100.079

NB: The effect of sale of CERs has a reasonable effect on IRR, but positive contribution to NPV and Net Cumulative Balance.



PROJECT FINANCING (1)

- ❑ Implementation of this project requires US\$ 3.4 million.
- ❑ Sources of funding:
 - Investment from sale of carbon credits in advance.
 - Company's internal generation
 - Loan from a financial institution in Zambia.



PROJECT FINANCING (2)

Example: Financial Package (US\$5)

Fund	Source 1 (50%)	Source 2 (100%)
Loan	1,859,562.50	1,339,125.00
Equity	1, 020, 000.00	1, 020, 000.00
Carbon Finance	520,437.50	1,040,875.00
Total	3, 400, 000.00	3, 400, 000.00



MONITORING PLAN

The main elements of the monitoring plan will include:

- ☐ Project description and responsible officers
- ☐ Calculation of CERs
- ☐ Data needs
- ☐ Sustainable development goals/indicators