

SUMMARY OF PROJECT DESIGN DOCUMENT (PDD)

(Date of Submission: 10th March 2007)

Name of Project:

Cattle Waste Management, Landhi Cattle Colony, Karachi, Pakistan
(Version PAK-Landhi CDM PDD v1).

Objectives:

- To create a valuable waste to energy and fertilizer enterprise from dumped cattle waste in Landhi Cattle Colony, Karachi.
- To help in achieving the objectives of combating climate change under by UNFCCC by reducing significant amount of greenhouse gas (methane) emissions.

Submitted by:

Empower Consultants Limited, New Zealand
(Representing New Zealand Agency for International Development - NZAID)

Project Sponsors:

- Empower Consultants Limited, Representing New Zealand Agency for International Development (NZAID).
- National Engineering Corporation (NEC), Karachi, Pakistan.

Co-sponsors

- City District Government of Karachi (CDGK) will provide land for Project activities.
- Society for Environmental and Economic Improvement of Cattle Colonies in Karachi (SEEICCK), representing communities (will provide dung @ Rs. 1/ Kg).

Total Project Cost:

	(Million US\$)
Installation of digesters:	34
Power generation equipment:	30
Sludge processing equipment:	10
Contingencies:	25
Transport Fleet:	3
Total cost:	102.15 million US\$

Estimated Emission Reduction:

<u>Source</u>	<u>Tons of CO_{2eq} annual reduction</u>
Manure Management System	1,420,154
Electricity Generation	110,825
Total annual reduction:	1,530,979

Operational Lifetime: 20 Years

Starting/Commissioning date:

15th July 2008 (commissioning date: 1st April, 2009)

Crediting/Validity Period:

- Kyoto first commitment period: 4 years (2009 – 2012)
- Estimated validity period (including Post Kyoto period): 10 years (2009 – 2018)

Economic Viability of the Project:

Internal Rate of Return:

Without CDM benefits: 3.2%
With CDM benefits: 27.4%

Benefits from the Project:

	Revenue/Annum (Million US\$)
Sale of Organic manure (1,440 tones per day @ Rs. 5/ Kg):	43.80
Sale of 25 MW Electric Power to KESC (@Rs. 3/KWh):	8.75
Sale of Carbon Credits (@ US\$ 10/Ton of CO ₂ eq):	15.31
Total estimated annual revenue:	67.86

Other qualitative benefits:

- The management of dung in an environmental friendly manner will help in improving local environment and re-establish natural biota in terrestrial and aquatic systems.
- The liquid fertilizer will be used for City District Government of Karachi for irrigation and fertigation of public spaces.
- The use of organic fertilizer will enhance agricultural productivity in an environmentally sustainable manner.
- Local communities will earn revenue through sale of cattle waste @ Rs. 1/Kg.
- The project activity will ensure saving of foreign exchange expenditure on fuel and fertilizer imports.
- New jobs for un-skilled migrant labour and semi-skilled labour (particularly women for printing/sewing of bags for organic manure).
- The project will be the Pakistan's first commercial waste to energy project. It will help transfer of modern technology (organic bio- digesters) and can be replicated in other areas in Pakistan where there are cattle colonies of up to 5,000 cattle heads.