

1. INTRODUCTION

1.1 General

The Sokoto State Government of Nigeria through the State Ministry of Agriculture, and Natural Resources is desirous of the comprehensive rehabilitation of the Lugu Dam and the Wurno Irrigation Project, both in Wurno Local Government Area of Sokoto State.

The Lugu dam is the source of water for the irrigation of the 1200ha Wurno Project used for the cultivation of various crops including Rice, Garlic, Onions, Wheat, Tomatoes, Pepper etc. However, the dam and its other structures are in dilapidated state, with the spillways, canals, drains all undergone excessive erosion and silted up, because of inadequate maintenance for a very long time.

1.2 The Contracts

1.2.1 *The Construction Works Contract*

The Contract for the Rehabilitation Works of the Lugu Dam and Wurno Irrigation was signed in December 2008 by the Hon. Commissioner of Agriculture for Sokoto State. Bar. Muktar Shehu Shagari for and, on behalf of the Sokoto State Government and the Managing Director of Waste Management and Environmental Solutions Limited, for a Contract Sum of **N780,763,787.00** and with a completion period of ^{two} ~~six~~ ^{year} ~~months~~ (6) months. The scope of works include the following:-

- Rehabilitation of dam embankment;
- Replacement of headgates into main canals;
- Rehabilitation of river channels, main canals, field laterals and drains;
- Repair and grading of access and service roads;
- Repair of erosion and protection works on existing dykes;
- Repair of main and auxiliary spillways.

1.2.2 *The Consultancy Services Contract*

Enplan Group in association with Kekedi Engineering Consultants were appointed in December 2008 to carry out the Detailed Study, Design Review and Construction Supervision of the rehabilitation works for the Lugu Dam and Wurno Irrigation Project. The Contract Agreement was signed in December 2008, covering the following services.

- Topographical survey;
- Investigation of suitable materials for the rehabilitation of dam embankment, field channels and drains;
- To redesign suitable lined field channels including all necessary hydraulic structures;
- To redesign Dajee Creek embankment;
- To redesign access and service roads;
- To provide construction supervision and management of rehabilitation works.

1.2.3 Contract Salient Facts

Contract Name:	Rehabilitation of Lugu Dam and Wurno Irrigation project
Contract Period:	1 yr Six (6) months
Contract Sum:	N780,763,787.00
Employer:	Sokoto State Government
Engineer's	Ministry of Agriculture and Natural Resources
Engineer's Rep:	Enplan Group in Association with Kekedi Engineering Ltd.
Contractor:	Waste Management and Environmental solutions Limited.

2. PROJECT BACKGROUND

2.1 General

The Lugu Dam and Wurno Irrigation Project was conceived and executed by the Government of the Northern Nigeria under the Sardana of Sokoto, Alhaji (Sir) Ahmadu Bello, in 1958 to exploit fertile land around the Wurno town for agricultural development.

Rehabilitation work was carried out by Impresit Bakolori about fifteen years ago to restore some facilities in the scheme back to original design.

The Government of Sokoto State under Dr. Magatakarda Wammako is now interested in rehabilitating and upgrading the facilities in the project, most of which are in dilapidated states, in order to boost the food security programme of the State.

Enplan Group in Association with Kekedi Engineering Ltd has since the appointment as the Engineer's Representative in 2008 to date continued to render the necessary Consultancy Services on the project to both the Employer and the Engineer.

2.2 Salient Features of Lugu Dam

The salient features of the Lugu Dam based on existing information include:

Dam

Embankment Crest Level	-	261.20masl
Maximum Height of Dam	-	9.0m
Length of Crest	-	6.5km

Spillway

Spillway Type	-	Un- Gated
Crest Level	-	257.88masl
Sill level	-	254.83masl

General

Maximum Storage Capacity	-	25MCM
Active Storage Capacity	-	20MCM
Crest Level of Dykes	-	257.38masl
Free board	-	2.5m

The Auxiliary Spillway

The auxiliary spillway features include:

- | | |
|-------------------------|--------------|
| - Crest level | - 257.38masl |
| - Spillway length | - 119m |
| - Spillway type | - Ungated |
| - Stilling Basin Length | - 25m |