A REPORT ON OPA DAM. OAU ILE-IFE .

ENVIRONMENTAL ENGINEERING
Obafemi Awolowo University ile-ife.

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I thank God for the grace to partake in the visitation to Opa dam and I also appreciate my parents and entire family for their love and support.And I also appreciate our instructor Engr. J.O. Jeje for his time to explain and show us the dam operations.

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ABSTRACT

Dams serves as a source of water for domestic, agricultural and industrial use.It also serves as a source of generating electricity.

The Opa dam which was commissioned in 1982 has been the major source of water on campus.It supplies all structures and facilities on campus with water.

CHAPTER 1

1.0 INTRODUCTION

Our visitation to the Opa dam took place on the 14th of march 2018. This visitation was included to our SWEP with the aim of giving us a practical knowledge of what we are being taught in class. Our instrustor Engr. J.O. Jeje took us on this visitation; explaining the operations and use of every equipment and facility found in the dam.

1.1 AIMS

The aims of the visit was:

- To give students a practical and visual knowledge of a dam.
- To familarize students with equipments and facilities used in the dam.
- To give students a clearer insight into water treatment processes.

CHAPTER 2

DAMS

2.0 DEFINITION OF A DAM

A dam is a barrier created across a water course to restrict the flow of water. You can only dam a perennial river i.e a river or stream that flows throughout the year.

Water flows from the upstream to the downstream; the upstream is where the water comes from and the downstream is where it flows to. If a dam fails, settlements,farms,and lives are exposed to the danger of flooding.

The first step in dam construction is reconnaissance.In this process both people living upstream and downstream are informed.So before the construction begins a cofferdam must first be constructed to create an accessible water source for people living in that area .

2.1. OPA DAM

The Opa dam which was commissioned by the Pro chancellor M.T. Mbu in 1982 is situated at OAU Ile-Ife, same location as the OAU ozonized water.

2.1.1. COMPONENTS AND EQUIPMENTS IN OPA DAM.

1. Dam crest
2. Rip-raps
3. Reservoir
4. Intake structure

5. Spillway
6. Weep holes
7. Low-lift pumps
8. Water Treatment unit
9. Elevation tank.

DAM-CREST

This is constructed to support the waterway. It is constructed in a way that it cannot support very heavy loads.Fig.1.1 shows Opa dam dam-crest.

RIP-RAPS

This a retaining wall made of big stones,arranged in such a way that it prevents the over flow of water from the reservoir. Fig.1.2. shows rip-raps of Opa dam.

RESERVOIR

This is where water coming from the upstream is stored. Fig.1.3. also shows the reservoir of Opa dam.

INTAKE STRUCTURE

This structure was constructed for the safe withdrawal of water from the reservoir.Fig.1.4. shows the Intake structure at OPA Dam OAU.

SPILLWAY

This is a structure constructed to regulate the flow of water downstream. See Fig.1.5.

WEEP-HOLES

These are small openings on the walls of the spillway. They allow water to drain and retain pressure. See Fig.1.6.

LOW-LIFT PUMPS

These are **centrifugal pumps** used to pump water from the dam to the water treatment unit. They are three pumps, while two of these pumps are running the third pump is kept on standby. See fig.1.7 for Opa dam low lift pumps.

WATER TREATMENT UNIT

This is a unit where water is taken through different processes to ensure clear and clean water for distribution.

HIGH-LIFT PUMP

This pump is used in pumping clear water into the elevation tank, which is then distributed by gravity.See Fig.1.8. for Opa dam high-lift pumps.

ELEVATED TANK

This supports a water tank constructed at a height sufficient to pressurize a water supply system for the distribution of portable water and to provide emergency storage for the protection.

Dam-crest Fig.1.1.

Rip-raps Fig.1.2.

Reservoir Fig.1.3.

Intake structure Fig.1.4.

Spillway Fig.1.5.

Weep-holes Fig.1.6.

Low-lift pumps Fig.1.7.

High-lift pumps. Fig.1.8.