

THE UNIVERSITY OF ZAMBIA
SCHOOL OF ENGINEERING
DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING
CEE 4412: ENVIRONMENTAL ENGINEERING I

ASSIGNMENT NO. 03.

DUE DATE: 27/09/2021 17:00HRS

A water supply system is being designed for Chaona District which is a new district in Luopili Province. The layout of the district is presented in Figure 1. The demographic data for the various areas within the district is presented in Table 1. It is anticipated that the design and construction works will take a period of five years. The life span of the project is anticipated to be 25 years. Design the sedimentation, filtration and chlorination unit operations in this plant. Provide a layout of the facilities you have designed. **Note: Where information is not given, make and clearly state your assumptions.**

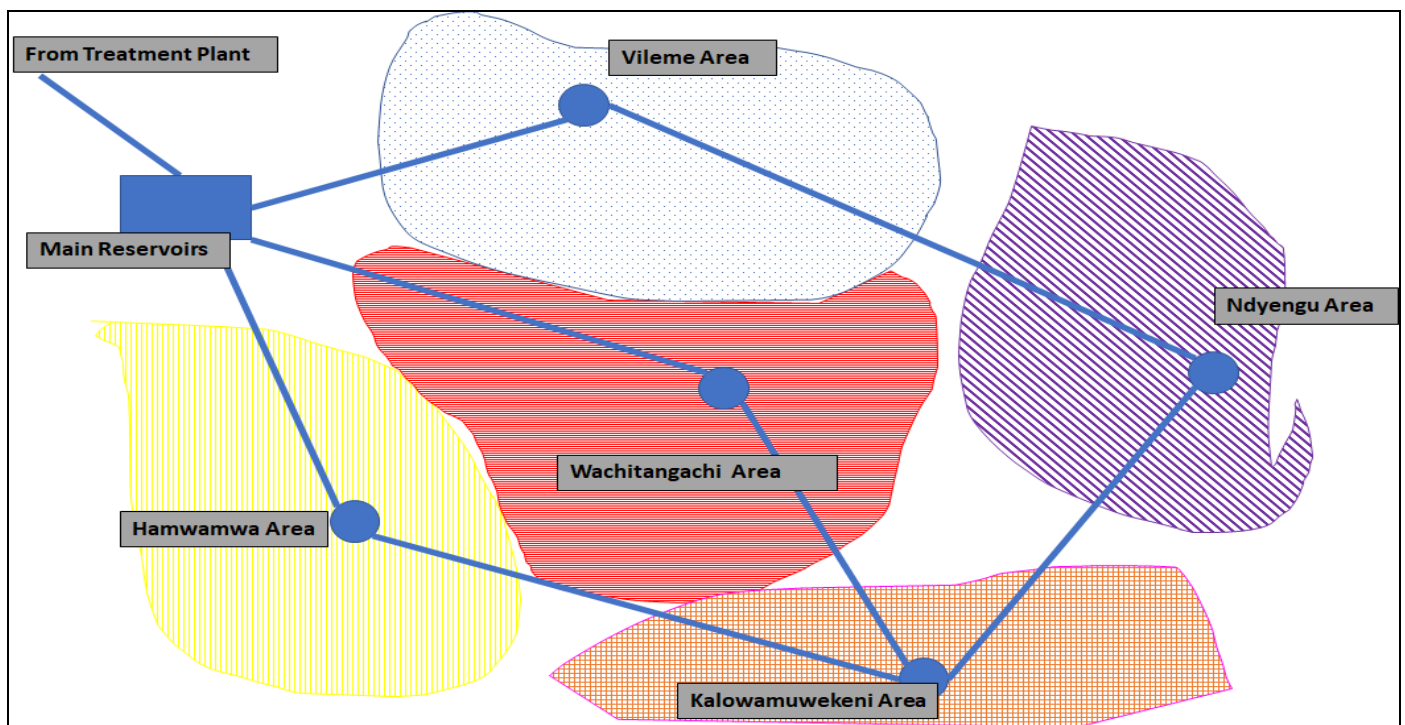


Figure 1: Layout of Chaona District

Table 1: Demographical data for the various areas in Chaona District to be serviced by the proposed water treatment plant

Area	Type of Area	Population (No.)
Vileme	Medium Cost	170,000
Wachitangachi	High Cost	80,000
Ndyengu	Low cost	120,000
Kalowamuwekeni	Peri-Urban	60,000
Hamwamwa	Low Cost	40,000