CHAPTER II

LITERATURE REVIEW

The review of the literature in this study is the previous research which is the findings of various studies that have been conducted in the form of journals, thesis and final assignment. Some of the previous research that was used as reference in this research, which is research from Winarni in 2011 titled Clean Water Needs Analysis in Sukodono Sub District, Sragen District and research conducted by Dina YuliyanaEkawati in 2017 entitled Clean Water needs and availability analysis for Pracimantoro subdistrict which is served by GiriTirta Sari projection year 2027.

Winarni's research aims to determine the amount of clean water needed by customers of the Sragen PDAM area of Sukodono in 2010 and the year 2020. The method used in this research is quantitative analysis with the research object of the PDAM of Sukodono district of Sragen District. Winarni research has received results, including 1) number of active customers in the area of Sukodono subdistrict of Sragen District from 2010 to 2020 increased by 786 SR; 2) The need for clean water in Sukodono sub-district of Sragen District with a reference to the predicted increase of population in the year 2010 suffered a deficiency of 16.389 lt/dt. While the year 2020 will have a shortage of 20.506 lt/dt; 3) The needs of clean water in the area of Sukodono district of Sragen District with the prediction of customer type year 2010 is not experiencing deficiency. While in 2020 will suffer a shortage of 6.7 lt/dt; and 4) the reservoir capacity in Sukodono is only 200 m3, so the need for additional reservoir capacity of 90.8 m3 in 2020.

The second research from Dina Yuliyana Ekawati in 2017 titled Water Needs Analysis and availability for the Pracimantoro sub-district served by GiriTirta Sari in the year 2027. This research aims to determine the number of clean water demand of the customers of PDAM Wonogiri, especially Pracimantoro Sub-district in 2017 and year 2027. The method used in this research is a quantitative analysis with the research object of PDAM subdistrict Pracimantoro District Wonogiri. The result of the research conducted by this is 1) prediction of active customers in Pracimantoro sub-district from 2017-2027

increased by 1,302 SR; 2) The prediction of clean water needs in Pracimantoro subdistrict in 2027 by population of 71.629 lt/sec; 3) The needs of Clean water District of Pracimantoro subdistrict service year 2027 according to the prediction of each type of customer is 21.064 lt/sec. Researchers used several earlier studies above as a reference and basis for research in supporting concepts and theories for this research.

The third research is thesis from Iwan Setiyanto from Muhammadiyah University of Purworejo in 2017 titled Water Demand Analysis (case studies installation of processing The problem of supply of clean water is now an issue in service Kutoarjo PDAM. The need for clean water is increasing every year. The availability of clean water is increasingly limited, because water loss is quite large. In order to avoid a significant losses it needs to focus on water losses and savings. And to anticipate water shortages, it is necessary to look for other sources of raw water. The research aims to explain: (1) the level of the availability of clean water PDAM Kutoarjo for 2019 is adequate demand and (2) how much of the house connection increase in Kutoarjo.This type of research is a discrete study to know the needs of clean water area Kutoarjo PDAM Branch Services and review the availability of IPA Kutoarjo. In the data collection, the data needed in this research include home connection customer data, clean water need data, water discharge data, and Kutoarjo PDAM development plan data. In this studyUsing a linear regression analysis.In this final assignment, the need for clean water for the Kutoarjo PDAM Service area in 2019 and analysed the availability of clean water PDAM Kutoarjo until year 2019 using secondary data reference from Kutoarjo PDAM, while in calculation using linear regression. The results of the study showed that the water demand in Kutoarjo PDAM area for the year 2019 amounted to 36.206 lt/sec and the water availability was 36.77 lt/sec. With a surplus of 0.562 lt/sec and also its home connection of 4,514 SR can thus be concluded the need that water availability Kutoarjo PDAM for the year 2019 meet the needs of the home connection customer at 4,514 SR.

The fourth research from Desi Maulidina Pratama in 2016 titled Analysis Of Demand And Availability Clean Water In Subdistrict Of Sukamulia Eastern Lombok. This study conducted analysis of clean water availability in the region

Sukamulia subdistrict of East Lombok regency. The analysis was conducted onthe area of Sukamulia subdistrict sourced from Mencrit Springs, and the springs of Tojang. In addition, this research will also be evaluated on water distribution network to determine the capabilities of existing distribution network. In determining pipe dimensions, researchers use the Hazen-Williams formula applied in the Excel computer program in the process of hydraulics analysis.Based on the results of the analysis, obtained the quantity of clean water in the area Sukamulia subdistrict and a one-time clean water supply of 185.647 lt/dt While the discharge available is 260 lt/dt.Thus,it can be concluded that *Source* Mencrit and Tojang are still able to meet the needs of the population until the year 2025. From the results of the projection year, the pipe dimensions used in the planning of switching dimensions of new clean water pipelines for Menrit spring are ø6 "for the Rempung zone, while the switching new planning clean water pipelines for Tojang Springs are ø16 "for the Masbagi, Sukamulia and Selong zones.

The fifth research from Desi Dedi Ade Pahrin Hasibuanin 2013 entitled analysis of the demand and availability of raw water in Tangerang Regency. Water is the main need for human to life and improve their welfare. Indonesia is located in the tropics and has the availability of raw water. Drought-prone was one problem in the raw water supply as a result of the uneven distribution of water in the region of Indonesia. Tangerang Regency is one of the areas of Indonesia's Banten Province has its challenges in the future to meet the needs of the raw water, due to the increasing population and decreasing ability of the environment both in quality and quantity in the raw water supply. This research aims to know the needs and availability of raw water in the near future. Water demand was analyzed by exponential approximation is a method, and water availability was analyzed based on linear equations obtained from linear regression using Microsoft Excel 2007. Water requirements were analyzed based on demand, such as the water needs for domestic, non-domestic, industrial, fisheries, livestock and irrigation. From the results obtained that level of water needs from 2010 to 2030 as a whole has increased, which for 2010 of 71,61 m^3/sec, 2015 amounting to 72,86 m^3/sec, by 2020 of 76,24 m^3/sec, 2025 of 82,75 m^3/sec, and 2030 of 95,35 m^3/sec. While the total availability of water from 2010 to 2030 from water source

river and groundwater degradation, which in 2010 of 143,17 m3/sec, 2015 amounting to 127,28 m3/sec, by 2020 of 114,02 m3/sec, 2025 of 100,75 m3/sec, and 2030 of 87,50 m3/sec. By 2030 water availability can't meet water demand, with a water deficit -7,85 m3/sec.