



**OPTIMALIZATION OF WATER SUPPLY NETWORK**  
**(Case study PDAM of Sumbawa Besar City)**

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**ABSTRACT**

*PDAM as corporation of regency government were expected to be autonomous in its operation, maintenance and development so serviceability to public increase. PDAM, in its operation, were very influenced by condition of pipes network installation. Pipes network were very important because even if water supply resource were available but the pipes network weren't technically working well, PDAM service considered not optimum. To avoid that, study must be carried out so the pipes network became optimum.*

*Optimization of water supply network of PDAM of Sumbawa Besar city used Water Net 1.6 Version program to help the calculation of pipes network and its serviceability. Before simulation of distribution pipes network were carried out, to reduce error between field measurement and calculation by Water Net program, calibration were implement.*

*Error of pipes pressure between secondary data from PDAM and Water Net program is 2.24%, after calibration becomes 2.13%. Simulation of existing pipes network with gravitation system were done by include leaking level at 40%, meaning increasing demand on nodes 40%, roughness of 20 years pipes assumed degraded 20%. The result of simulation of existing network is not optimum because tank I and tank II overflow, pressure of each node with demand is good. Simulation of network optimalization were carried out by add accessories such as gate valve to control water discharge in pipe connecting reservoir and tank. Consument (demand) were also raise up to 60%, the result is that the pressure in each node with demand optimum, its between 29.83 and 99.39 mH<sub>2</sub>O. Economic analysis for the change of transmission network using Economic Internal Rate of Return (EIRR) were resulted 10.21%*

*Keywords: optimalization, water supply network, simulation*