ABSTRACT

Reliable network connectivity between Selong District in East Lombok Regency and Maluk District in West Sumbawa Regency is crucial to support community communication needs, especially as the two regions are separated by water and feature hilly terrain. A backbone network using radio link technology is designed as a backup for the primary submarine cable network. The antenna diversity method is chosen for its ability to maintain signal quality under challenging geographical conditions, such as waterways and hills, by ensuring a line of sight (LOS) connection. While fiber optics offer high-speed transmission, their drawbacks include limited coverage and high installation costs. In contrast, radio waves provide wider coverage with more economical installation, albeit with performance affected by geographical obstacles. This approach aims to establish a reliable and efficient inter-island backbone network to meet the connectivity needs of both regions.

Keywords: *(Backbone network, radio link, antenna diversity, line of sight (LOS), inter-island connectivity, waterways, hilly terrain, Selong District, Maluk District.).*