ABSTRACT

The development of telecommunications technology is growing very fast around the world because of the need to communicate and share information quickly, telecommunications service facilities in the territory of Indonesia are also required to provide maximum service at speed, accuracy, and security in sending data information that is evenly distributed in each region to meet the needs of the community in the field of telecommunications in the era of globalization. The government's plan is to accelerate the development of telecommunications infrastructure throughout Indonesia, because many remote areas have not been met with access to telecommunications services, namely areas categorized as 3T, especially in SEZ (Special Economic Zone). With this problem we want to build Fiber Optic Communication System infrastructure in remote areas, especially 3T areas (Frontier, Outermost, and Disadvantaged) so that there is no lag between regions and they can use telecommunications networks easily. For the selection of locations that fall into the 3T category, we chose the Tanjung Lesung area in Pandeglang Regency, Banten Province. In addition to being included in the 3T category, Tanjung Lesung is also included as one of the SEZ priority development areas that have been regulated in the SEZ Law (Law Number 39 of 2009 concerning Special Economic Zones) and its amendments and implementing regulations.

From this description, the researcher offers 3 system solutions that will be made for the construction of this fiber optic communication network infrastructure, namely fiber optic transport network design, fiber optic access network design and cellular access network design. Testing of each sub-system is carried out using Optisystem Software and Google Earth. Then QoS (Quality of Service) testing is carried out on LPB (Link Power Budget), RTB (Rise Time Budget), as well as BER (Bit Error Rate), SNR (Signal Noise To Ratio), and Q-Factor Calculations can be done using two ways, namely using manual calculations using equations on each existing parameter and the second can use an application software, namely Optisystem.

Keywords: *SEZ (Special Economic Zone), FOU AREA (Frontier, Outermost, and Disadvantaged Region), QoS (Quality of Service), Google Earth, OptiSystem*