

ABSTRACT

Indonesia is the greatest archipelagic nation in the globe. This country has 17.504 islands. Based on (PP No 78 Tahun 2005) Indonesia has 92 small outermost island which are directly adjacent with ten neighboring country. This condition brings many advantages as well as challenges to our nation.

Facing these problems, satellite technology found its important and strategic role. This Final Project holds some key point such as understanding the special character of Indonesian Archipelago and analysis on its needs of communication service, formulating recommendation on satellite based integrated solution system and analyzing the economic value of the project including CAPEX, OPEX, and Total Project Cost. The funding scheme is planned to use Universal Service Obligation Fund.

From the calculation, we recommend a service with 512/128 kbps bandwidth, Overbooking ratio 1:8. Link budget for Inbound (Miangas-Cibinong) using 8PSK Modulation & FEC $\frac{3}{4}$ shows a good result with C/N_{total} (20.57 dB) > C/N_{req} (19.65), E_b/N_{osys} (17.39dB) > E_b/N_{oreq} (16dB) with 1.39 dB margin. Link budget for Outbound (Cibinong-Miangas) using BPSK Modulation & FEC $\frac{1}{2}$ also shows a good result with C/N_{total} (20.57 dB) > C/N_{req} (20.56), E_b/N_{osys} (20.56dB) > E_b/N_{oreq} (16dB) with 10.06 dB margin. Inbound link is Power Limited with maximum capacity of 108 carriers whereas the Outbond link is Power Limited with maximum capacity of 20 carriers. Total Project Cost needed is 15,384,513,537.00 IDR with the amount of CAPEX 2,214,784,000.00 IDR and OPEX 13,169,729,537.00 IDR.

keyword : Satellit, VSAT, outermost island, USO