Broadband Access Technologies for Rural Connectivity in Developing Countries

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Abstract [en]

Rural areas especially those of the developing countries provide challenging environment to implement communication infrastructure for data and Internet based services. The main challenges are the high cost of network implementation and lack of customer base, as rural areas are characterized by low income, highly scattered and low population density. This situation drives network operators to establish network infrastructures in urban/city centers leaving rural areas as underserved community. This paper surveys the available connectivity technologies with potentials to offer broadband access network to rural areas. The scope of this survey is on wireless access technologies, due to the fact that they are efficient in terms of cost, time of deployment and network management for rural environment. We provide comparison of the surveyed technologies in terms of their capacity (data rates) and coverage. We also discuss the current deployment of WiMAX and 3G technologies in Africa, which is a home to most of the developing countries. The survey results indicate potential broadband access technologies for rural areas of the developing countries.

Keyword: access network; broadband; developing countries; rural