

## **Planning of Broadband Wireless Access for Rural and Remote Areas**

Ignat Stanev, Assoc. Professor, Chairman ITC Committee 3, Bulgaria

First this presentation discusses the characteristics of the rural and remote areas through statistical data for different telecom indicators. There are particular details for countries from the Asia – Pacific region. Main source of the used statistical data are the world telecommunication/ICT indicators collected regularly by ITU.

Then there is a summary of the necessary service, market, technology modeling as bases for planning of the broadband wireless access. Discussed are market forecasting, access network optimization and final economic analysis of the obtained solutions. Also there is short summary for the requirements to the planning software to be used for such cases.

Finally a case study for evaluation of different broadband solutions in the access network is presented.

The case study includes several phases:

- Geographical data processing (e.g. from raster maps), services definition, market segmentation and customer mapping;
- Technology definition in terms of infrastructure, node and link elements, necessary interfaces, capacity limitations, maximum distances allowed, etc.;
- Network optimisation, including minimization of the number of necessary network elements, best possible node locations within the studied area, optimisation of the service areas for the separate node elements.
- Economic evaluation of the resulting network in terms of revenues, investment costs, installation costs, maintenance costs, cash flow, NPP, IRR, etc.

Special attention is drawn on the wireless technological solutions, which include additional network optimization with regard to evaluation and optimization of the terrain coverage.

The case study is performed with highly professional NP tools, provided by companies, partners of ITU in the network planning programs and activities.