**ITU-D Regional Development Forum
for the EUR and CIS Region:
"NGN and Broadband, Opportunities and Challenges"**

Session 4

Case Study on Broadband
Access Network Planning

Ignat Stanev
ITC, Bulgaria

Content of the presentation :

❖ **Case studies and used planning tools**

❖ **Case study 1 – Bamako urban and suburban**

➢ **xDSL for the urban area**

➢ **WiMAX overlay for urban and suburban area**

❖ **Case study 2 – Tbilisi urban and suburban**

➢ **xDSL and FTTO for the urban area**

➢ **WiMAX for the suburban area**

❖ **Case study 3 – Dushanbe urban and suburban**

➢ **xDSL and WiMAX for the urban area**

➢ **WiMAX for the suburban area**

Case studies on broadband access network planning

➢ **The case studies present the planning process that needs to be performed for planning of broadband access networks**

➢ **Planning process includes market definition, dimensioning and optimization of the access network elements, economic analysis and results.**

➢ **The case studies are from ITU projects on assisting of developing countries and are performed with professional NP tools, available through ITU partners**

Case study tools

VPIsystems OnePlan Access
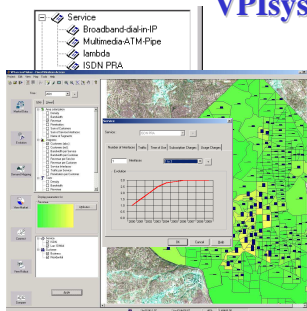
Market definition

Evolution forecasting

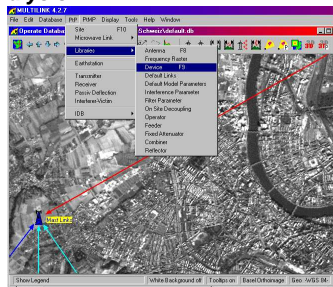*Demand mapping*

Technology modeling
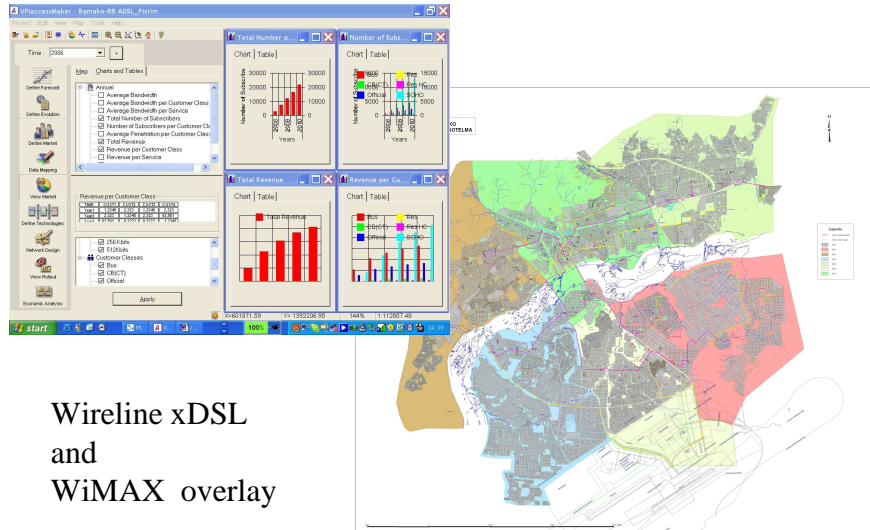
Network design optimization

Economy analysis
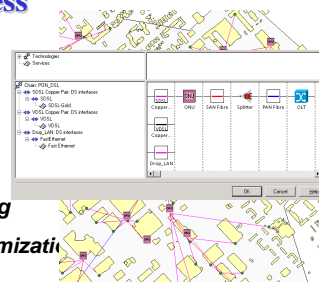
LStelcom MULTIlink

MULTIlink is a complete solution

for fast microwave link

engineering and designing of

PMP/WLL/LMDS networks.

Case study Bamako – urban and suburban area :
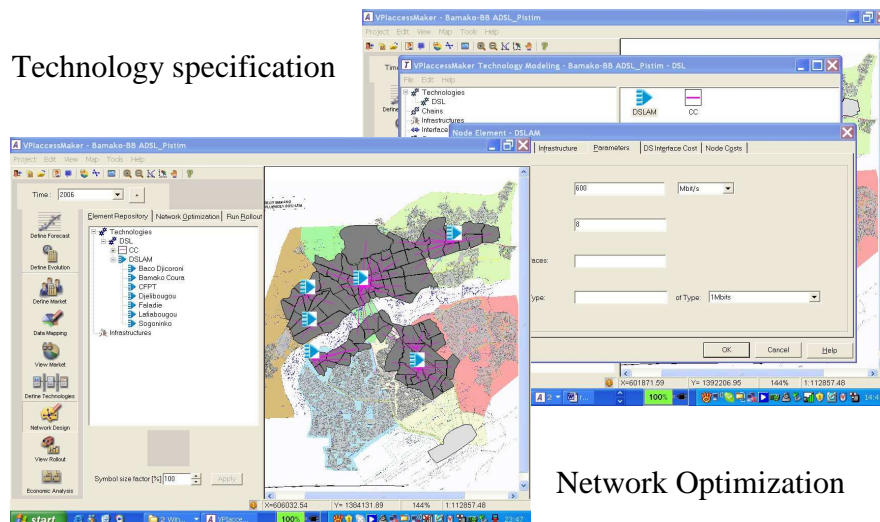
Wireline xDSL
and
WiMAX overlay

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Case study Bamako - Planning xDSL :
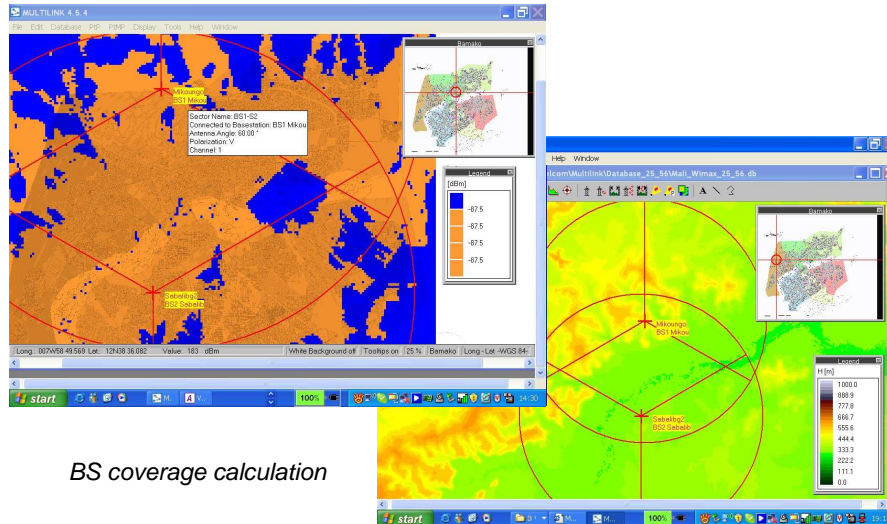
Technology specification

Network Optimization

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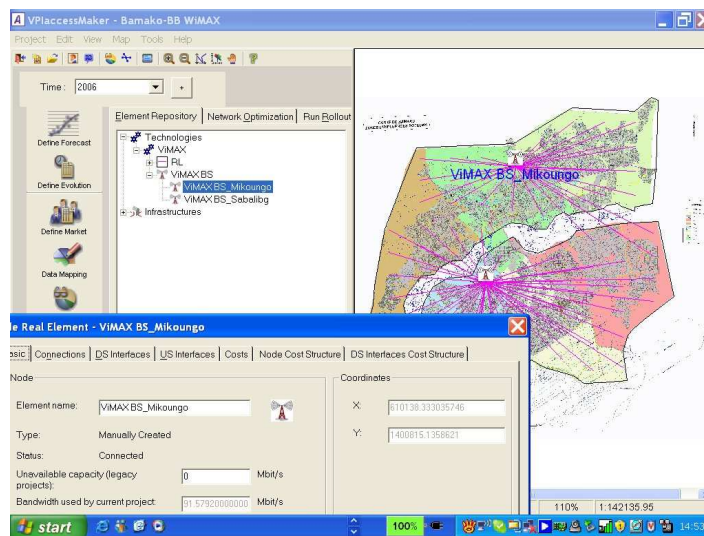**Case study Bamako** - **Planning wireless :**

BS coverage calculation

Case study Bamako – Wireless access network :

Case study Bamako - Economic Analysis :
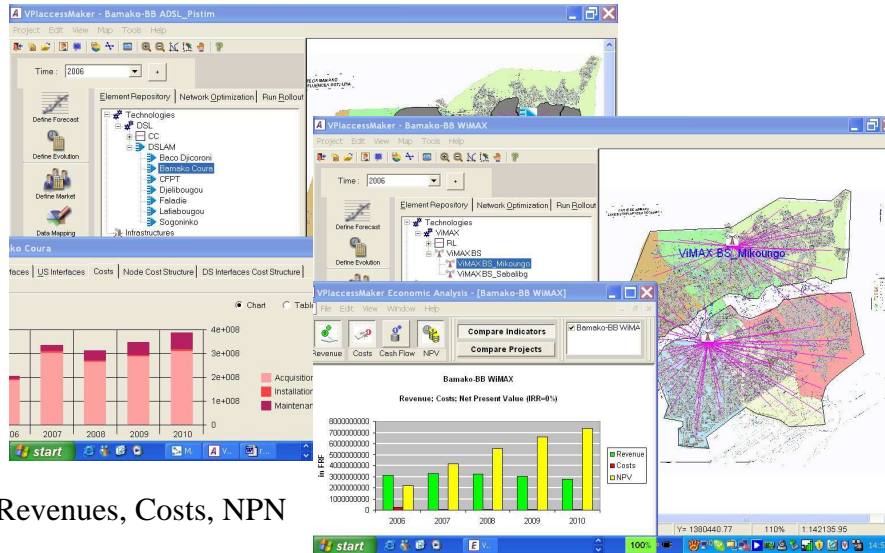
Revenues, Costs, NPN

Case study Tbilisi – urban area :

➢ **Tbilisi city (5 districts)**

➢**Market**
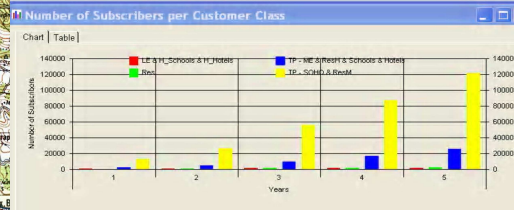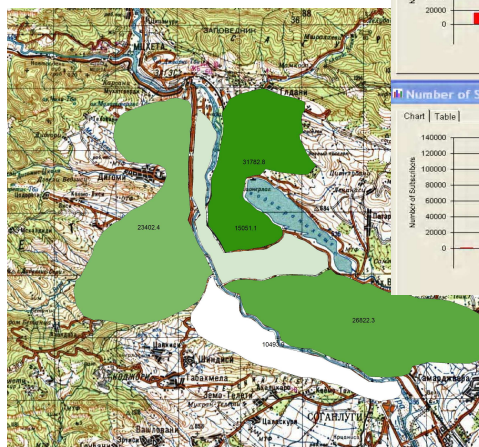
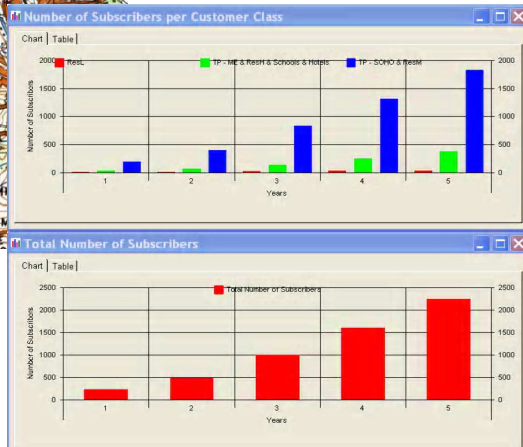➢ **4 customer classes**
➢**Forecast for 5 years**

Case study Tbilisi – suburban area :
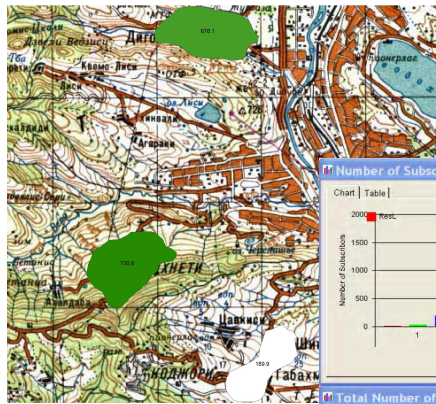
➢ **Tbilisi suburban region (Tskneti, Dighomi, Tabaxmela, Chindisi)**
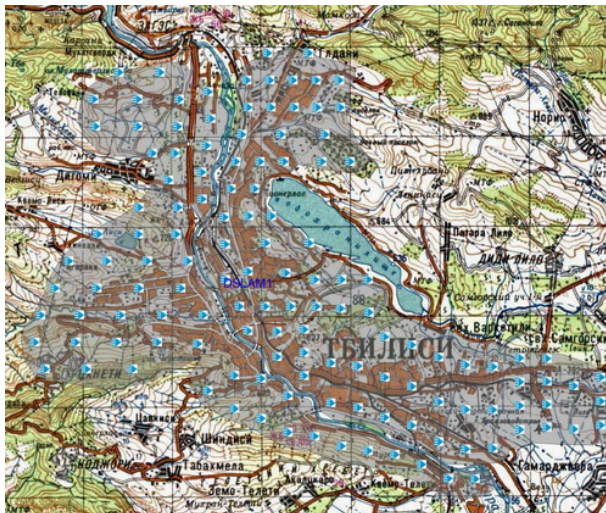
➢ **3 customer classes**

➢**Forecast for 2 years and 5 year**

Case study Tbilisi – access network for urban area :

➢ **Tbilisi city (5 districts)**

➢ **technical solution xDSL for VoIP, Fast Internet, IPTV/Video (134 DSLAMs)**

Case study Tbilisi – access network for urban area :
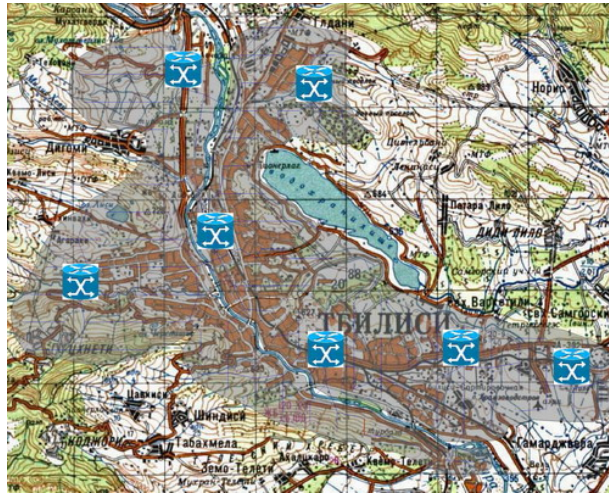
➢ **Tbilisi city (5 districts)**

➢ **technical solution FTTO (7 Agg. Nodes)**

Case study Tbilisi suburbs - mountain rural area :

Wireline xDSL
vs.
Wireless WiMAX

Results for xDSL

Case study Tbilisi suburbs – Wireless access network :

Results for Year +2

Results for wireless (WiMAX)
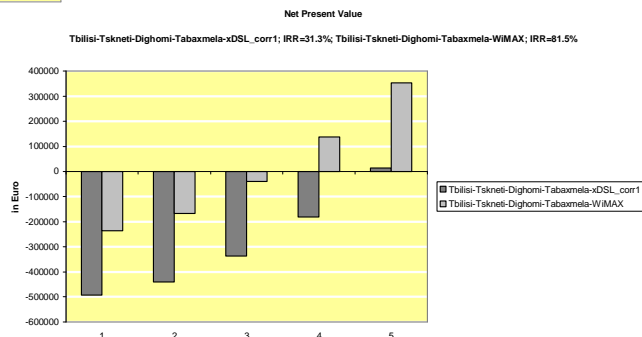
Case study Tbilisi - Economic Analysis :
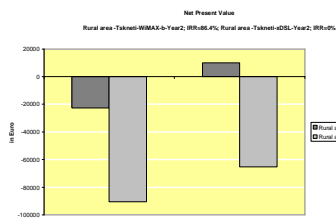
Results for 2 year period
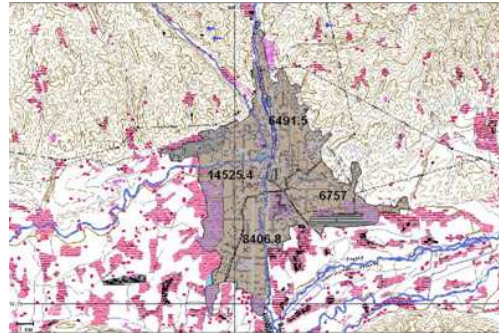
Revenues, Costs, NPN

Results for 5 year period
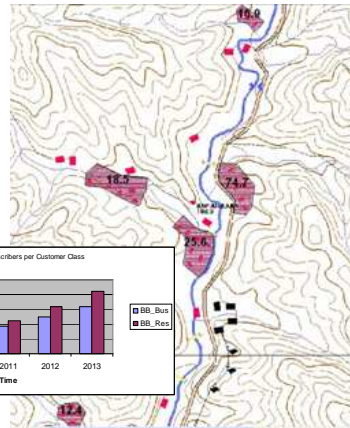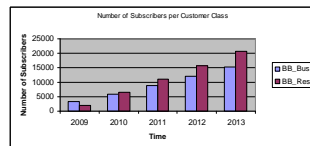
Case study Dushanbe – urban and suburban area :

➢ **Dushanbe suburban (sample with 5 villages)**

➢ **Dushanbe urban   (4 districts)**

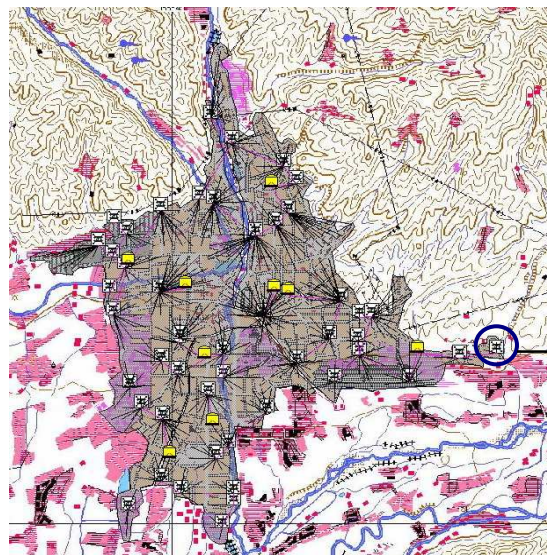## Case study Dushanbe – access network for urban area :

➢ **Dushanbe city (4 districts)**

Wireline xDSL
and
WiMAX overlay

MSAN

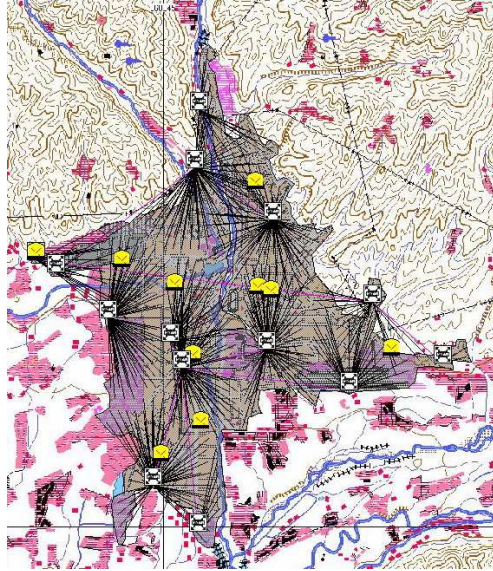➢ **technical solution xDSL for VoIP, Data, Internet, IPTV/Video (49 MSANs and 9 EANs)**

Case study Dushanbe – access network for urban area :

➢ **Dushanbe city (4 districts)**
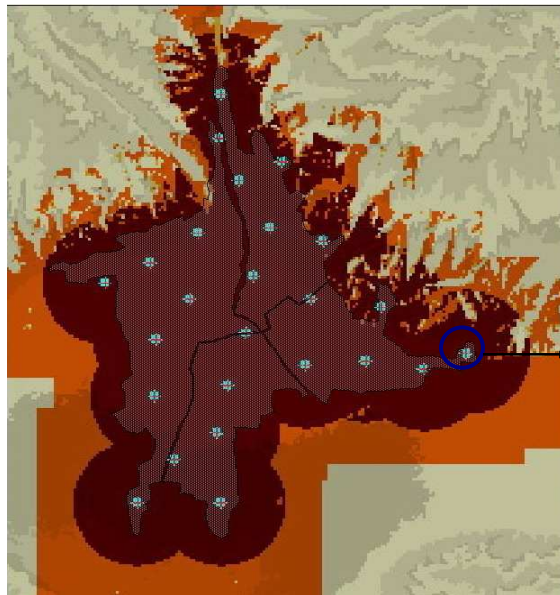
Wireline xDSL - Initial solution (year +1)

➢ **technical solution xDSL for VoIP, Data, Internet, IPTV/Video (14 MSANs)**

Case study Dushanbe – access network for urban area :

➢ **Dushanbe city (4 districts)**

WiMAX overlay

BS

➢ **technical solution WiMAX for VoIP, Data, Internet, IPTV/Video (25 BSs)**
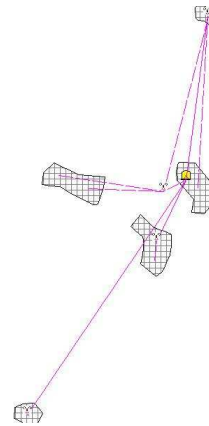
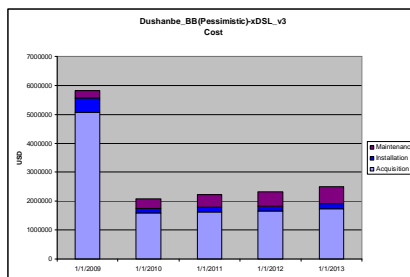**Case study Dushanbe suburbs – Wireless access network :**
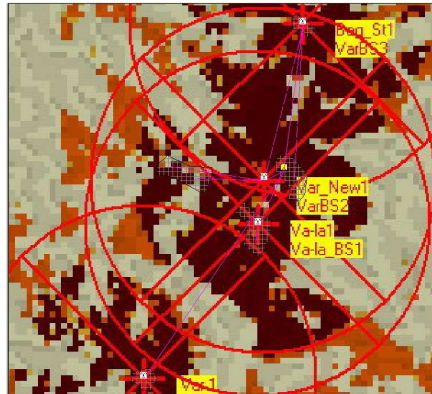
➤ **Dushanbe suburban (sample with 5 villages)**

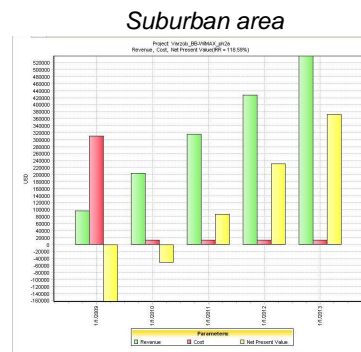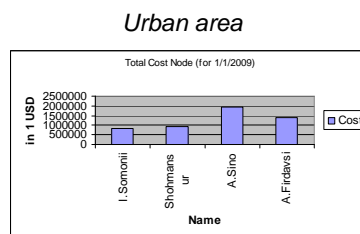Results for wireless
(WiMAX)

Case study Dushanbe - Economic Results :

Results for 5
year period

Revenues, Costs, NPN

Urban area

Suburban area

Results for initial network

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