Wireless Network at NUR

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Butare - RWANDA

Profile of project area

- **Network is to serve the university population - the students as well as the staff (academic and non academic)**
- **Linked to the university internet service**
- **This is made up of about 9,000**
- **Butare is very hilly, network covers campus and town**
- **Using the national grid**

Site selection

- **MTN network** - **GSM**
- **RwandaTel Network** - **CDMA 2000**

NETWORK AT NUR

- **Site selected based on LoS from Base station to CSU**

- **Needs for the students research work**

- **Generate data for academic use by students and lecturers analysis**

- **Gov. support the project by allowing university to own its wireless network**
  - **Tax exemption tax**
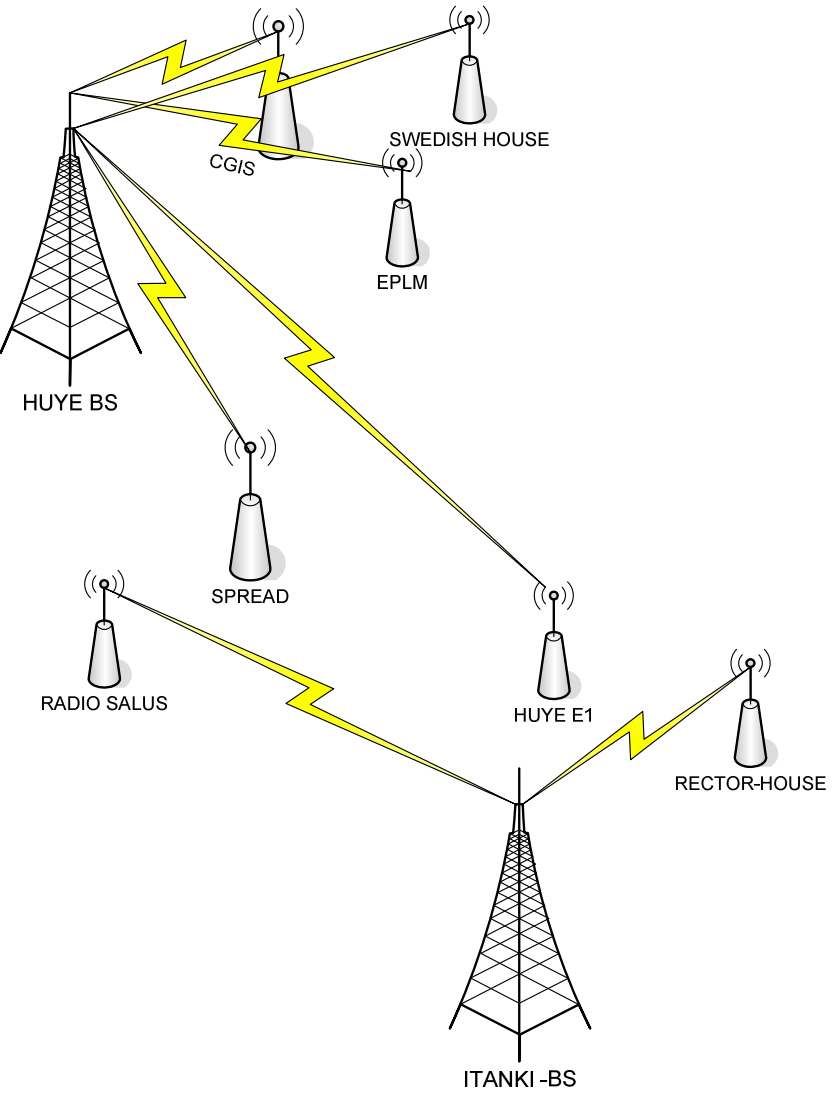 - **Exemption of yearly subscription to RURA (Regulator)**

Description of project network

- **The Technology Level – backhaul, power, wireless network**
- **Wireless network diagram**

- **Students of the MSc in ICT Program as well as undergraduates in telecommunication**

- **Project funded by SIDA/SAREC**
  - **USD30000.00 + *USD20000.00***
- **Using licensed frequency band 3.3 GHz**
- **VoIP legal**

Network Diagram

Business models

- **Expected number of clients**   **No**

    – **Academic staff**   **-**   **400**
    – **Non Academic Staff**   **-**   **200**
    – **Students**   **-**   **1000**

- **Token (not yet decided)   -   Frw 2500 (3 – 5 USD)/month**

    Number of clients, running costs, income ????

Challenges & Lessons learned

- Procurement
- Installation problems (Shadow zones)
- Interference with other communication systems
- Attenuation (trees etc)
- High demand

Way forward

PROJECTS

- **Expand the network to integrate with power line communication involving ELECTROGAS**

- **Extends network to rural farming areas during farming and harvesting period for education of farmers**

- **To join in the training of "One child one laptop" project.**

RESEARCH

- **Study Social Impact (Involving social scientists)**

EFFECTS OF RAINFALL

- **Study of rainfall effects on wireless networks**

OPEN SOURCE APPLICATION DEVELOPMENT

- **Encourage open source developers for software application development.**