

ZittNet, Community Wireless Network

John Dada

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ZITTNET: Nigeria's First Rural Community Wireless Network.



Profile of Kafanchan area

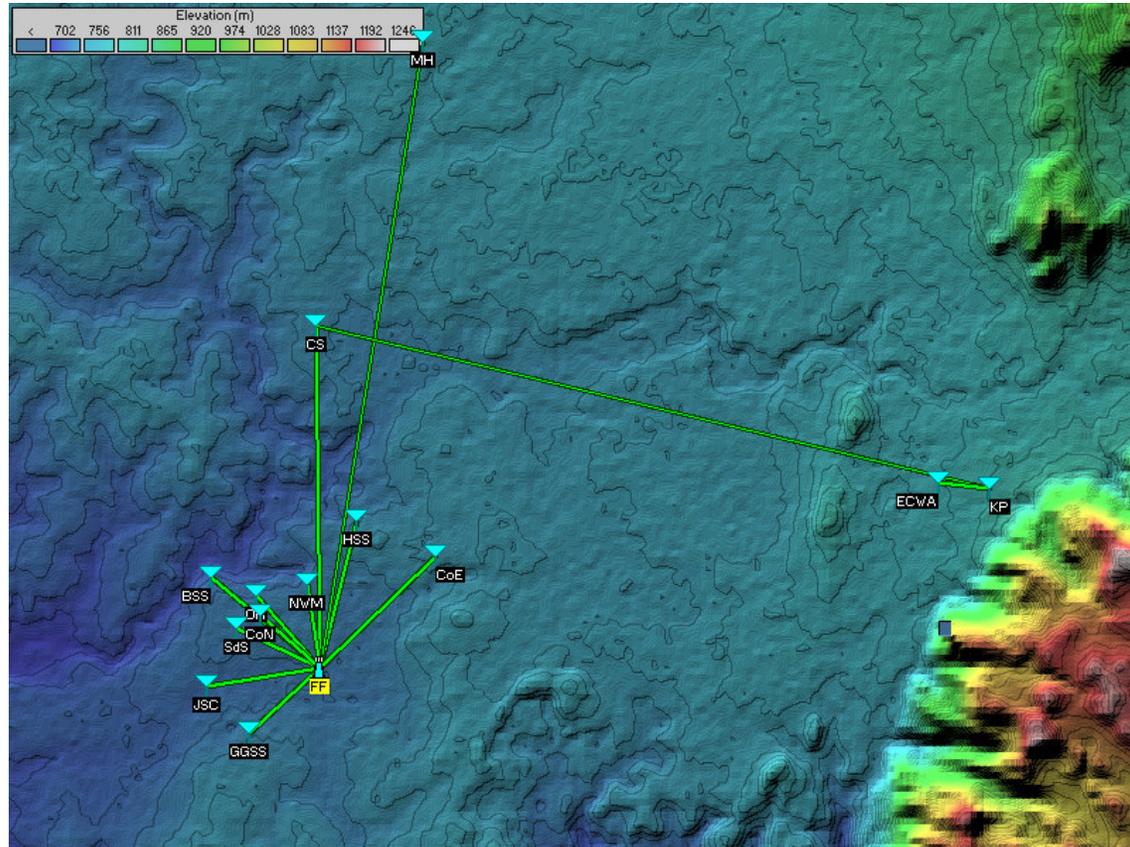
- Nigeria's 1st rural-based ICT education facilities established by Fantsuam in 2001, in Kafanchan, Kaduna State. The school's first intake of 11 students has grown to 250 by 2005 and currently over 700.
- The various ICT services are complemented by a microfinance service. This service that started in 2001 with 25 clients, and has now served over 7000 clients; 97% of which are females.
- Kaduna State population = 5 million people. Kafanchan, is a railway junction town that has a mobile population (1.5 Million) of traders, farmers and miners and is the local government headquarters of Jema'a Chieftdom . The State is bounded by parallels 9°03'N and 11°32'N. Average rainfall is 1530 mm.
- Nov 2003, Fantsuam connected to the Internet by installing a VSAT through Emperion of Denmark.

Site selection

- **Kafanchan has 3 tertiary institutions, 4 new banks in addition to 3 existing banks, civil servants: growing demand for ICT services**
- **3 cybercafes also providing basic computer training**
- **Impact assessment ongoing. No systematic needs assessment undertaken**
- **The Roles of Various Local Actors:**
 - **Fantsuam provides services to two government institutions, as well as provide capacity building for secretarial staff of tertiary educational institution**
 - **Regulator's dilemma: Before now no license category available for Not-For-Profits who wish to become Internet Service Providers.**
 - **SMEs: Retail shops and DIY stores sending staff for training**
- **Kafanchan is now served by the three major Mobile service providers, but none of them provides reliable service**

Star topology, bridged

- C-band VSAT
- 1MBx256kbps
- Contention 1:10
- USD820/month

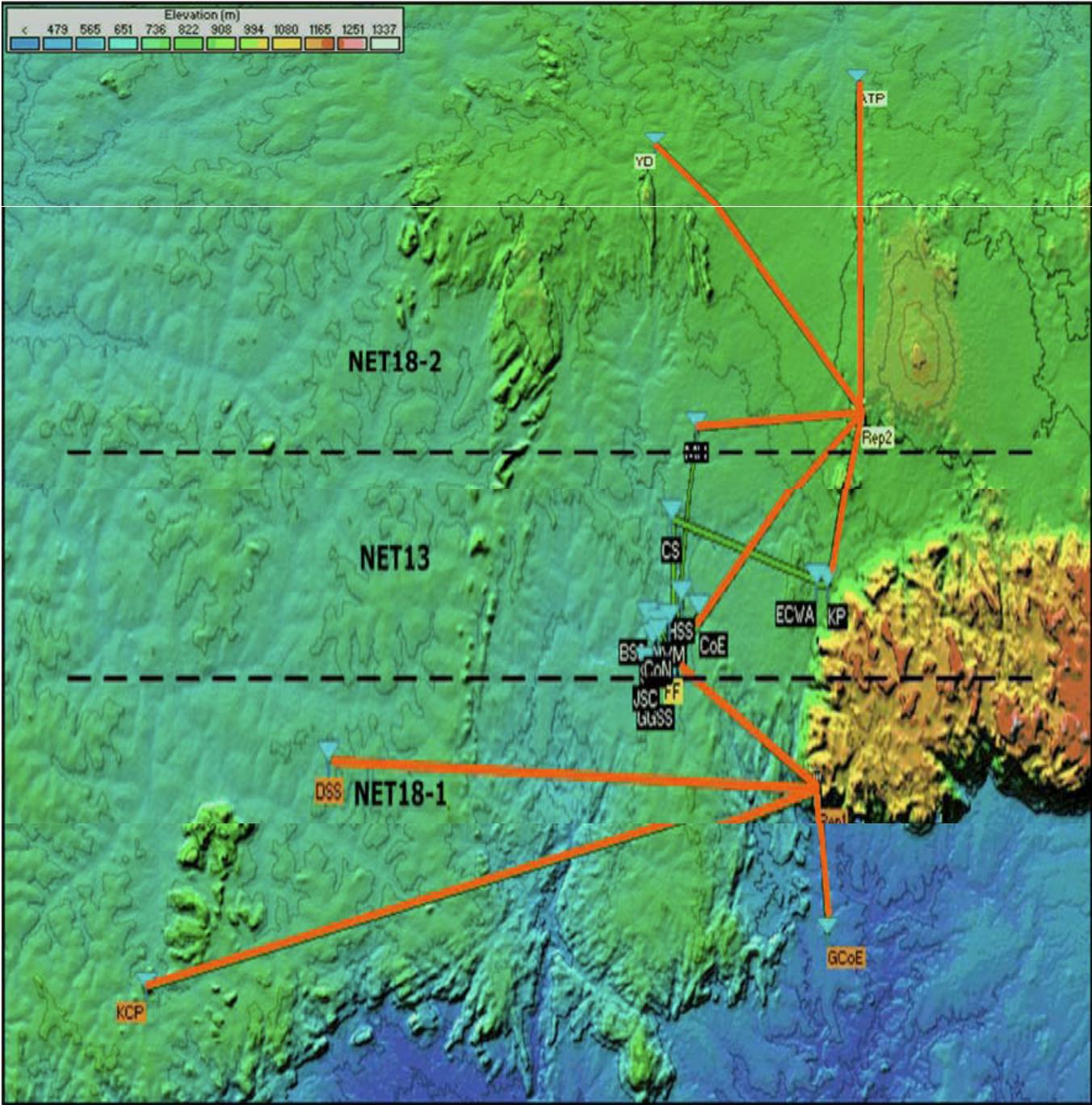


Description of project network

- Regulatory environment – wireless and VoIP are legal
- A full topology for interconnection of 18 sites prepared
- Kafanchan is 1.5 km west of Fantsuam Foundation premises (where the VSAT gateway is situated).
- Kagoro hills, 10km East of Fantsuam Gateway provides optimal position of a repeater which can enable links up to 40-50 km, but the site would require solar power and provision of security
- Financial – costs for infrastructure and capacity building was provided by IDRC. Unanticipated hardware and bandwidth costs due to changes of upstream provider totals USD26,774.25.
- Human Resource and Capacity – available skills unstable due to high staff turnover
- Wireless equipment: Smart-bridge radios and 2.4GHz high gain antennae for our backbone as base station units, D-link for indoor wireless clients. They operate on the IEEE 802.11 standard. The 2.4GHz antennae are Omni directional while the smart bridges are 90degree sectoral.

Business models

- **Number of clients, running costs, income**
- Star topology network and is bridged, it currently has eight client sites outside of the Foundation compound. Four of the sites have single users and the other four have multiple users ranging from three to ten users at a given time because they are either small businesses or telecenters. The telecenters can have up to 20 users per day, while the other centers have 3 to 6 users daily. The Fantsuam ICT schools have an average of 70 students coming in everyday for classes and an average of 50 children every Saturday for the Computer Club.
- Total investments to date=USD231,557.
- Running costs USD14,540. annually
- Revenues USD1,174 monthly
- Users per day = average of 100 user
- Subscribers: 06
- Is ZittNet covering costs? Not yet, ZittNet started operation July '07



Challenges & Lessons learned

Bandwidth costs and Upstream Provider: 3 Providers so far

- At the start of this project Fantsuam Foundation was paying USD1,008 per month
- In July, 2007 ZittNet migrated to a new provider, Pay As You Go (PAYG) business model. The bandwidth 128/512 MB at cost USD3,810.25.
- Not reliable: could not migrate FF mail server, Prepaid vouchers not supplied, payment method cumbersome
- New provider 36 month contract with three months upfront payment for space segment (1024 kb x 256kbps) at a total cost of USD9,860.00.
- Unanticipated bandwidth and VSAT hardware costs totaling USD26,774.25.

Technical staff high turnover: competitive wages

ICT4D and Social investment

Is ZittNet covering costs?

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Social Entrepreneurship Model

- What are the social values of providing such ready access to wireless access for information?
- Sustainability not solely based on ZittNet expense sheets.
- The ICT4D facilitating the creation of an enabling environment that makes it possible for SMEs to thrive, new career opportunities for rural youths (hence the high staff turn over!)
- This model requires that we see who actually benefits and then look again to see if there are any who would be beneficiaries with a bit of encouragement.
- Also, the benefits don't have to provide an immediate return, as clearly providing communication services to people is not a luxury, it should be considered as a right.

Way forward

- **Replicability and scalability**

- **Stabilise technical staffing situation: organizational needs assessment just concluded and plans for hiring better paid staff and training retired professionals being considered**
- **Recruitment of new clients: business manager and team working on strategy**
- **Socio economic impact of wireless network: Monitoring and Evaluation team just concluded training and started data collection**
- **Retain ICT4D Focus: New Career opportunities for rural youths, Distance Learning: MPH, Children's Computer Club**
- **But..... bills must be paid!**

