

dB

dwayne bailey

IDRC  CRDI

 meraka
I N S T I T U T E

African Advanced Institute for Information
& Communications Technology

Peebles Valley mesh project



16th October 2007

FMFI dissemination workshop

Use wireless mesh networking in the Peebles Valley area as a low cost first mile solution connect people to the internet and each other.

Test if a community can take ownership of the network.



IDRC  CRDI

dB
dwayne bailey


meraka
INSTITUTE
African Advanced Institute for Information
& Communications Technology

Background



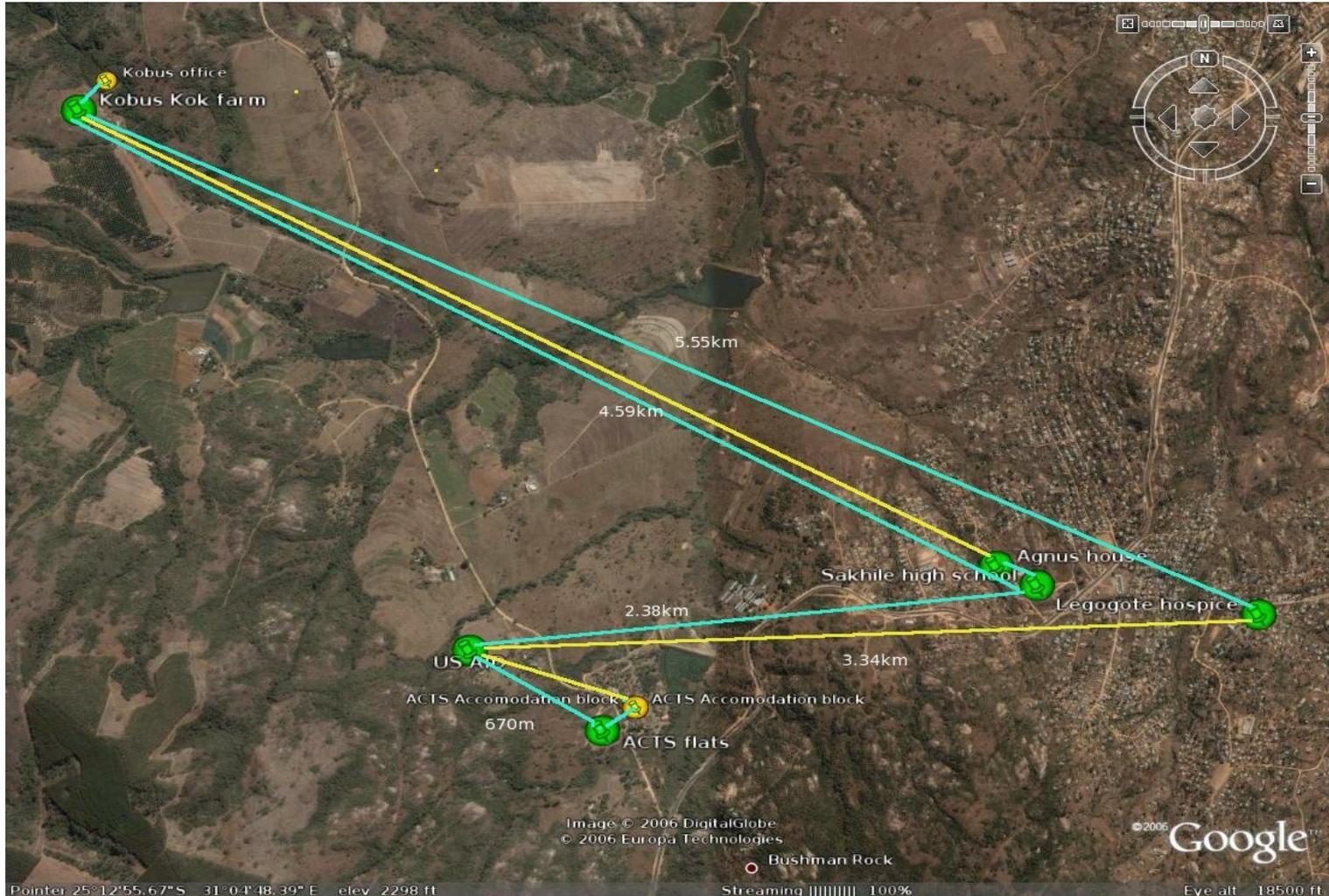
ACTS Clinic



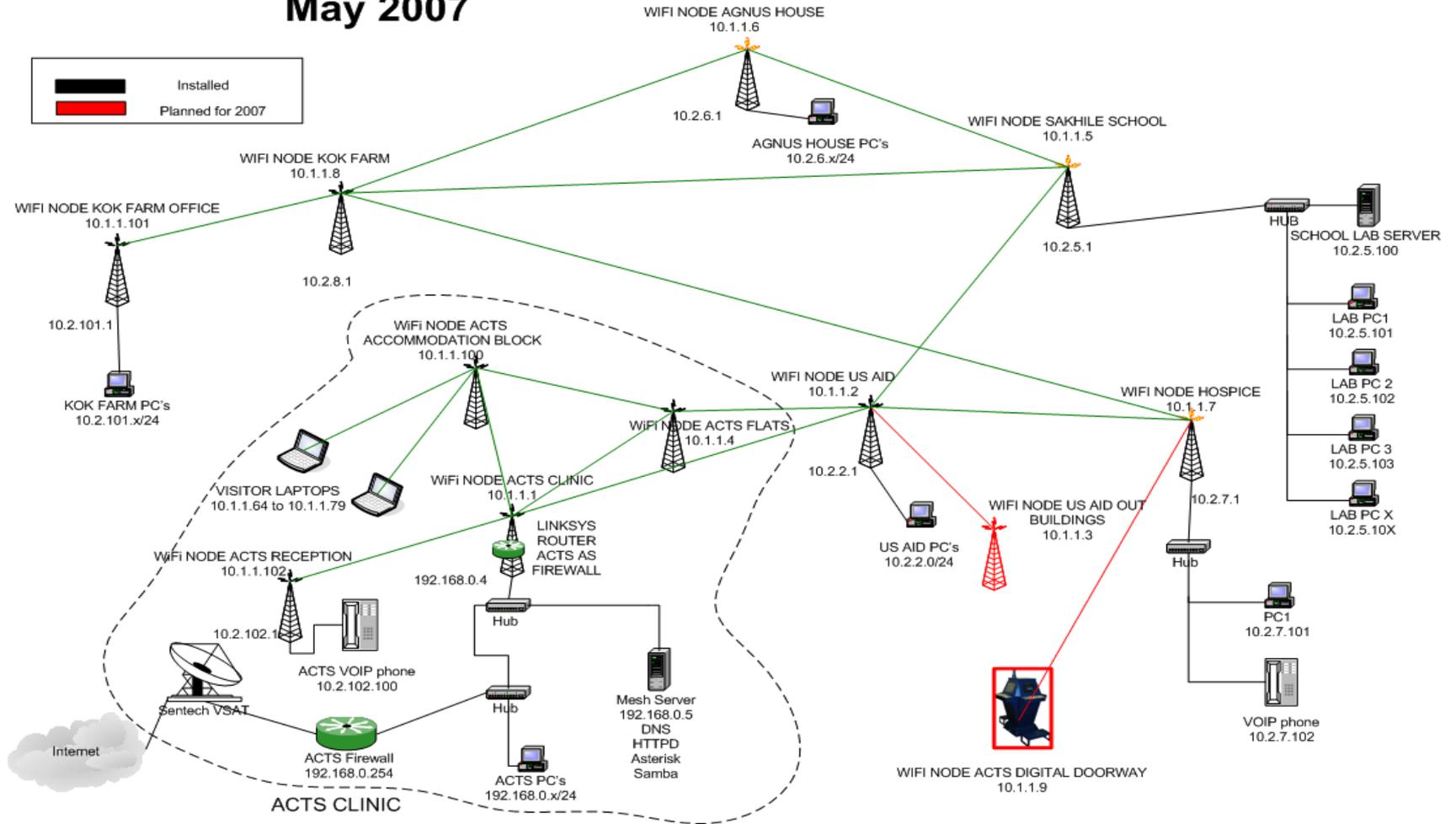
ACTS Hospice

16th October 2007

FMFI dissemination workshop



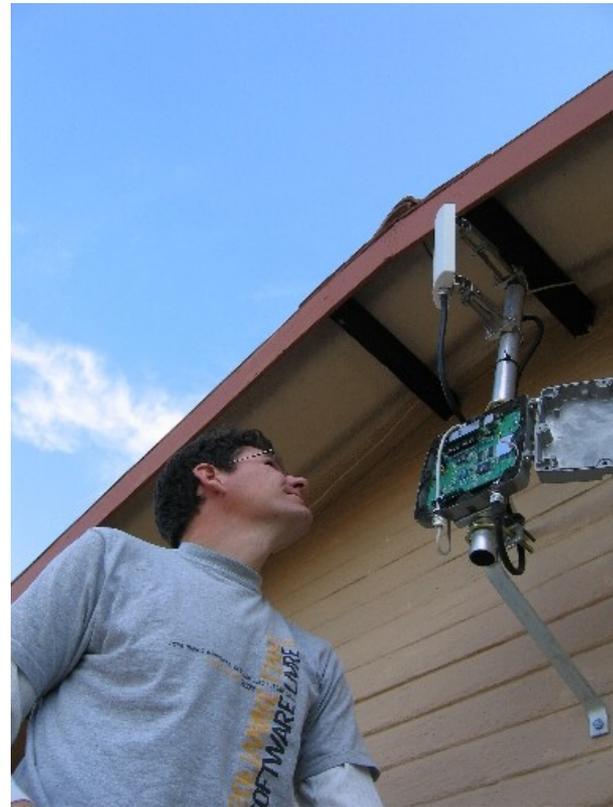
Mpumalanga mesh network Network diagram May 2007



16th October 2007

FMFI dissemination workshop

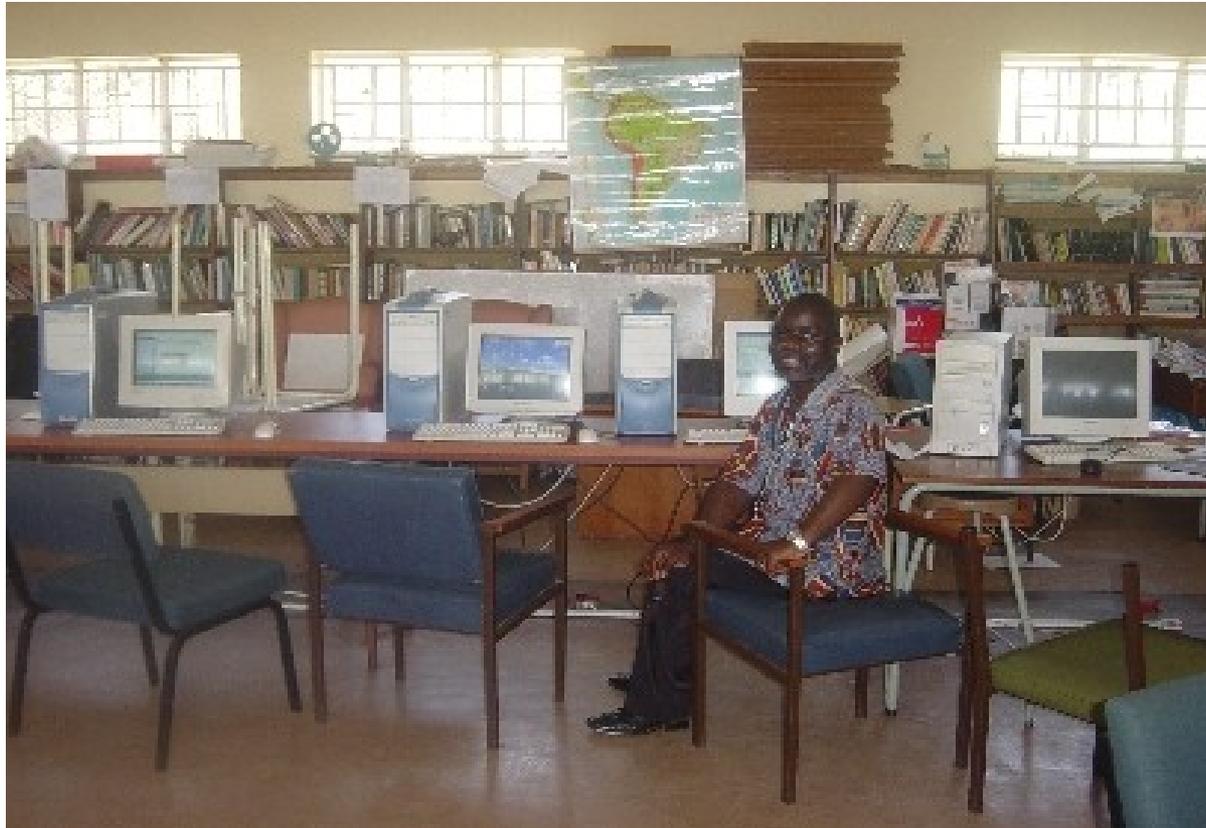
USAID



16th October 2007

FMFI dissemination workshop

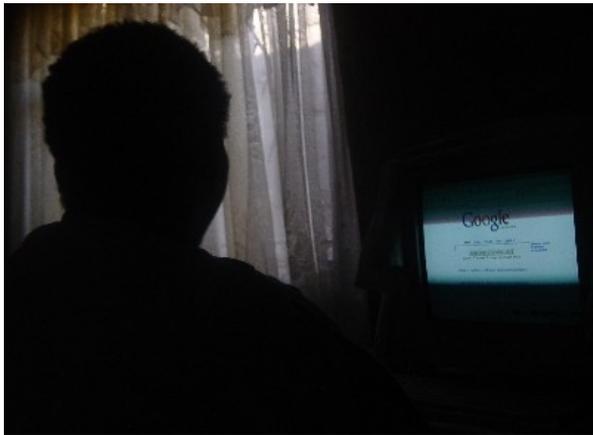
Sakhile High School



16th October 2007

FMFI dissemination workshop

The house where Agnus lives



16th October 2007

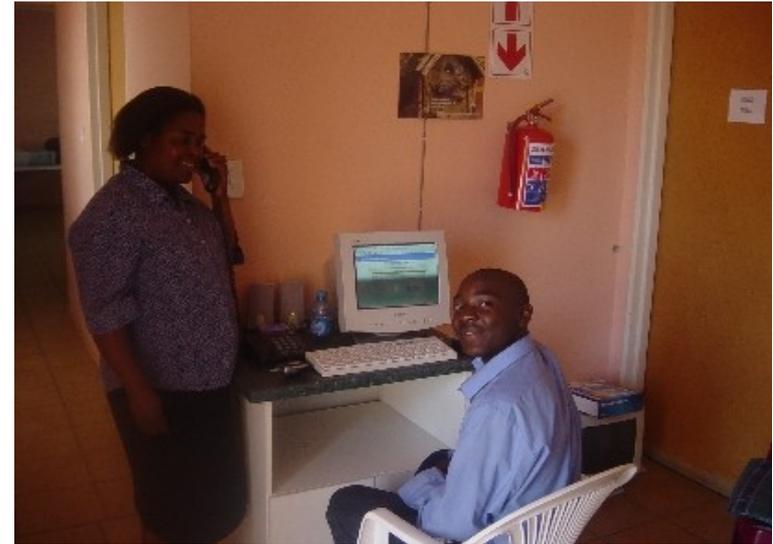
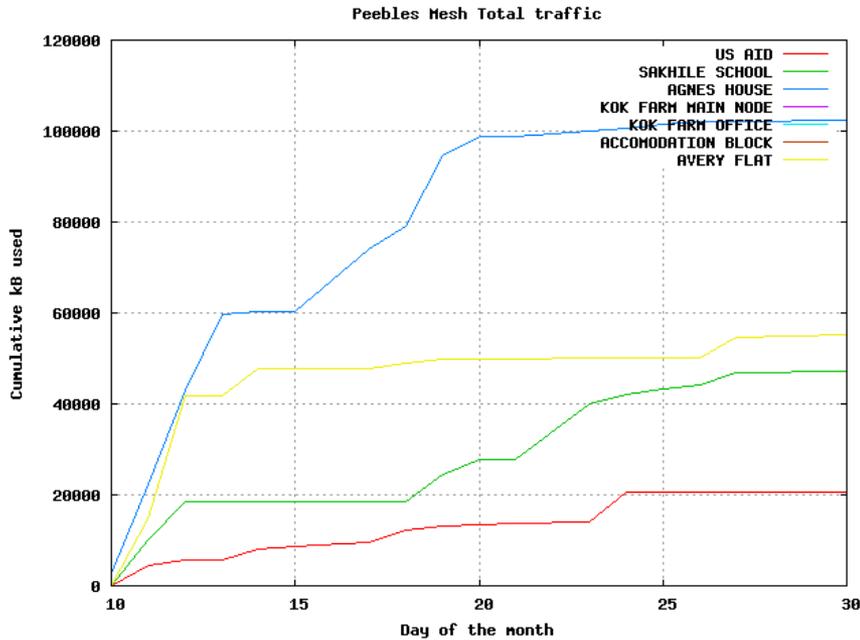
FMFI dissemination workshop



The effect on the Clinic



Managing the bandwidth (the Godfrey factor)



Lassey's experience



16th October 2007

FMFI dissemination workshop

But all of this is illegal !

Built a clear case for the creation of a free community network infrastructure licence.



dB

dwayne bailey



16^h October 2007

FMFI dissemination workshop

Lessons (1)

- Mesh networks are a viable solution for rural connectivity
- Sharing some free VSAT capacity amongst a large pool of users is not a long term sustainable solution – a commercial service is still needed eventually.
- Tight bandwidth management is essential to fairly distribute bandwidth amongst users in a mesh.
- Bandwidth limitations need to be carefully explained to first time users (e.g. music downloads consume bandwidth quickly)
- First time users need to be sensitized to typical internet scams and phishing schemes

Lessons (2)

- Lightning effects ethernet connections – avoid long ethernet
- Masts with large antennas are bent and blown over by wind
- Configuration of mesh nodes still not completely deskilled
- Cost not an issue for some farmers which made the mesh network a hard sell – they use 3G/GPRS for the roaming convenience
- Commercial viability of the network difficult for entrepreneurs due to current licencing regime
- Opportunity to use this technology more important then educating people about technology.

Outcomes

- Cut the high costs of phone calls between clinic and hospice
- Networks perform well even with home-built inaccuracies
- A local computer business wants to duplicate Peebles mesh
- Average throughput rate exceeds fastest ADSL link – 64kbps
VSAT still the bottleneck
- Mesh generated skills which in turn helped provide jobs