DAVE HUGHES

dave@oldcolo.com

http://linkingeverest.com

… wise advice to anyone seeking to make the political argument for unlicensed spectrum in the developing world (addressed by Dave in a Nepalese context)

Well, as one who has spent years extending the benefits of unlicensed wireless, from Mongolia and Wales to Mt Everest and Rural Montana, I've been down this road before.

You do not have as much a technical or regulatory problem, as a Political Problem.

Almost all developing world countries have it also. Nepal is not alone. The US Congress is having the same problem, believe it or not. For added to the political problem of competing 'special interests' very few people including government decision makers - can grasp the technical reasons why Unlicensed ISM band communications works, does not have to interfere with any other radios.

So I will be glad to help, but my advice will be far more addressed to the political hurdle, and some ways to deal with it, than technical or just regulatory.

1. Start by asking yourself who will be affected - harmed, **IN THEIR OPINION** (whether true or not) - by making some spectrum unlicensed for use and eliminating or reducing greatly the government 'taxation' on ISM band radios. Let me list a few:

    a. Nepalese Army and Security Services
    b. Nepalese PTT - government owned telephone company
    c. Maoists
    d. airlines, especially in-country local ones.

e. commercial or non-commercial services that already use (whether legally or not) USA ISM frequencies 902-928Mhz, 2.4-2.483 Ghz or 5.2-5.8Ghz frequencies.
f. cell phone companies and operators in Nepal.
g. companies - stores that sell radios using anything in those bands now.
h. local Nepalese radio broadcast and television operators
i. the Revenue offices of Nepal (those who have jobs collecting taxes on radios)
j whatever government agencies get the revenues from the tax on radios.

Now as I said, many of the above would **NOT**, in reality be harmed in the least by permitting the spectrum for Wi-Fi (2.4-2.483ghz) to be unlicensed. But that that makes no political difference. If they ***think*** they will be affected adversely you have a political problem.

One ISM band which is ok in the US 902-928Mhz, is not OK in any country with GSM cell phones. I would not include those bands in your request. In fact your observation that if you can just get Wi-Fi bands authorized, you would be happy is valid. I would zero in on that band only, and forget the other ones. If you get Nepalese government authorization for that band only, the higher ISM bands, where Wi-Max is, for example will be easier to get, at a later date.

In fact you should go after the 2.4-2.438 spectrum slice and not call it just Wi-Fi, or get the words Wi-Fi into the changed regulations. Because there are other companies, world wide, like Alvarion, who sell good, powerful, radios in that band but are Proprietary systems. Just ask for that band.

2. All national governments have SOME spectrum regulations. Often they are borrowed from the regulations in other countries. And in some countries there are NO laws or regulations covering some of those frequencies above, especially the higher ones. That's good and that's bad. If it is not regulated, your job is easy. If it is, you may get resistance from some of the above vested interests. In **most** cases you need to get your arguments together why Wi-Fi does not interfere at the power levels you use in **rural** Nepal. In Katmandu and other dense urban areas may be another story.

3. Find out ‘who’ regulates the spectrum for the Nepalese Government Find the one low level bureaucrat (I'll bet there are very few) who (a) has the authority and (b) understands radio technically. Wine and dine him, maybe grease his palm. Or give, loan, him a Wi-Fi radio.

But politically, make him a ‘hero’ if you can. Get him willing to recommend it - as if it is ‘his’ idea - and he won't lose his job. Make him the Expert of Wi-Fi spectrum in Nepal.

.

4. Now for the Political Benefits argument.

a) See if you can get at least one Parliament member and Minister as your Champion.

b) Think through all the **real** potential benefits to Nepal, its **economy**, its **people**, its **education**, its **medial services** in remote areas etc *(see below)*. And get vivid examples and testaments from other countries and from inside Nepal itself to use on decision makers and with the Nepalese press, when they start interviewing you - which they will. Have your ‘sound bites’ ready, and give them email and telephone contact information for those who can make the same case from their countries. *(I will be glad to talk to them - endlessly about the benefits to Nepal, and use my work in Namche among the Sherpa's as an example. If they call voice, I can, via Vonage or Skype, talk their ears off if need be)*

c) In *all* the topics below, think about what Nepal would ‘like’ to happen. It is not enough to just say that Nepal will be technologically backwards unless they do it (don't threaten!). You need to think, for **each** area, what Wi-Fi unlicensed communications will do **positively** for Nepal. Such as:

d) **ECONOMICALLY** - a large part of the economy of Nepal is Tourism. Give all the reasons how Wi-Fi can help bring more trekkers to the remote, but attractive areas of Nepal OTHER than just the Solu Khumbu Mt Everest Corridor. Predict that more and more Tourist/Trekkers will be carrying their *own* Wi-Fi radios inside their laptops, or PDAs. Argue that if they can 'connect up' back home from their sometimes, many week treks, they will being money to some of the poorest villages they pass through, or stay over - which you are trying to do in your remote valleys. And of course, as Tsering Sherpa has been doing for years now, he provides a satellite 'connection' to the rest of the world from Namche, and did so at Base Camp at Everest, for the climbers and trekkers, journalists, and medical people, and is able to use Wi-Fi Radios to connect up trekkers who can 'call home' - and will pay for the privilege. Don't overlook what it can do (and is doing now) for business, government, in Kathmandu and other urban centers.

e) **BUSINESS** - Tell them that in Bangladesh a lady has set up a small wireless enterprise in the countryside. She and her computer is linked to the Internet several miles away to a city, wirelessly. She offers a service to farmers, who come to her and she get answers for them about their crops from far away experts. They don't use the Internet themselves. She does it for them as an Information Service, charging them a very small fee. She has an income, with just her computer and a wireless connection, the farmers get agricultural answers, an Internet provider in the city gets some income, and 'everybody wins'.

And if any very small, business has something to sell of value - products, Nepalese arts or crafts, music, or carvings or religious images, they can sell them over the Internet if they have a low cost connection to the Internet, and be wirelessly connected where there are no wires. They can set up web sites as 'Marketplaces' which can reach the world

f) **EDUCATION** - I don't have to lecture you on what you have done for schools in your Himanchal area, but broaden the *benefits* case for **all** education in **all** Nepal. Making it possible for bright kids to learn about the rest of the world and even take lessons from teachers and schools around the world. And schools and universities in Nepal can become better connected to the Internet inside the schools, between schools, and to the outside world and its knowledge. (you will want to set up one of your 'conferences' with Parliament and Ministers WITH a wireless connection to your computer. Get Worldlink's assistance. And be able to SHOW them how you are connected and let them ask you questions to ask Google and instantly get them answers. (put the Nepalese character font on your Windows machine and access Nepalese language sites - there are quite a few)

Tell them, as one example, how, Tsering and I, helped by Jim Forster of Cisco Corporation, set up a wireless link 5 miles from the satellite base in Namche to Thame, and a Sherpa in Pittsburg, America, Mingma Sherpa taught them ORAL English over the Internet by Internet voice (VOIP) at a tiny cost. So kids in 10 years old in Thame, whose Nepalese teachers did not know English were able to learn some English, *and* technology - (and the teachers were learning at the same time) all because there was a

5 mile wireless connection from Namche to Thame. Now don't forget that the Nepalese Government, because it owns the PTT (telephone company) does not like VOIP because they think it takes revenue from them. But, you should argue that there is ***no*** reason why the Nepal PTT cannot use unlicensed wireless itself , and offer voice telephone services where there are no costly telephone lines!

g) **MEDICAL** - tell your government that unlicensed wireless links are being used in Rural America to connect up small clinics, doctors, and hospitals to the Internet. They can send X-Rays, and get vital medical information from the centers of medical knowledge and other doctors for difficult cases. And the rural doctors and nurses can themselves continue their medical education.

h) **PUBLIC SAFETY** - Educate them on the ability of wireless connections, even mobile, can help enormously Search and Rescue in the Himalaya mountains. As you have already proved, unlicensed wireless can reach 60 km or more (line of site, or with relays, solar powered) to summon help. If unlicensed wireless was authorized, every mile of trek from Juri, Lukla, Namche, Tengboche, to Gorek Shep and the Base Camp, could be reached and be connected by trekkers and their guides themselves, where no voice cell phone towers will ever be. And we are talking about between 20,000 and 50,000 paying trekkers that go up the Solu Khumbu every year, taking risks, and far away from access to conventional communications.

i) **PUBLIC WELFARE** – In many places in the world, from remote Alaska to urban centers, governments can *monitor*, weather, water, rain, snow, levels and detect avalanches by use of wirelessly connected Sensors and data collectors. Because of the wirelessly connected Data Loggers I helped the University of Alaska set up, operating hundreds of miles out of Nome, Alaska, Eskimos can watch the weather and plan their snowmobile trips carefully. The University gets access to better data and forecasts than the US Weather Service which it can then broadcast!

j) **PEOPLE** - with wireless connections, in cites and villages and even remote homes, or one-person wirelessly services connected places where people connect up Nepalese People can connect up to their relatives all over the world - and there are *many* Nepalese who live outside of Nepal. Keeping Connected to their families, and communities is very important to Nepalese people, in my experience. Every village in

Nepal could be connected at very low cost (equipment and service). Just as every Sherpa in Namche is able to use Tsering's Cybercafe for the past 5 years.

These are just a few of the **BENEFITS TO NEPAL** that unlicensed, even just Wi-Fi level, radios can bring.

You have not only to show them the benefits, but ALSO arm yourself with solid answers *and* specific examples of what is ***not*** a problem - from getting brain cancer from the radio emissions, interference with existing radio based services, (airlines, television, radio, cell phones, police, Army). And make it easy for them to ask 'outside experts' in the same fields, why and where unlicensed communications is *not* a problem for them.

Finally, you need to try and show, in Nepalese Rupee terms, how the spread of wireless radios, if it is left 'un-taxed' (either radios or spectrum) will ***increase revenue***, not only to businesses, but *also* to government itself from the economic growth it can encourage. If Nepal gets a reputation for being the most Wireless/Personal Computer mountain nation in the world (so you have to keep the world media informed and make press releases on the entire political campaign) I am certain you will get more mountain climbing trekker tourists than China-Tibet, Bhutan, or the Himalaya provinces of India!

This is just my first crack at it. Tsering Sherpa has invited me back to Namche, to help cut the ribbon on his new Lodge funded by Yeti Airlines - which wouldn't be there had not he been using, mastering, and imaginatively deploying Wireless (linked to the base of his Satellite IP feed.). Since I may be dropping in for a visit, I would be glad to sit down with you and some government officials and help convince them, and give them answers to their (political) problems approving this.

Dave Hughes

Old Colorado City (very wireless) Communications dave@oldcolo.com http://linkingeverest.com