

Chapter 5

Conclusions

It is an accepted fact that ICT development is linked with socio-economic development and makes life more comfortable. It is also a known fact that there is a digital divide between developed and developing world. In addition to that the developing countries have a digital divide between cities and rural areas. In Sri Lanka the majority of the population (72%) lives in the rural areas and therefore to develop ICT in the country the rural areas have to be developed. The major hindrance to ICT development in rural areas is the lack of Telecommunication infrastructure. When the current telecommunication infrastructure distribution is analyzed it becomes clear that most of the infrastructure is centered around cities and specially the western province of the country.

The liberalization of telecommunication market in Sri Lanka has brought in competition. But the private sector, being commercially driven and profit oriented, looks at only lucrative market in the cities leaving last mile connectivity unattended. World opinion is changing, to look at the rural connectivity not as last mile but as the first mile.

In the rural areas there are markets, which can afford telecommunication facilities, and there are markets, which cannot afford. There are markets that under perform due to Government and regulatory barriers, which are referred to as efficiency gap (Oestman 2003). There are markets, that don't perform even if the barriers are removed which are referred to as true access gaps. Different approaches have to be taken to attend to each of these markets.

5.1 National ICT Policy

Creation of a National ICT Policy is necessary to have a direction for the development of ICT sector. In Sri Lanka At the moment there is no ICT policy. The importance of having

a national policy is described in the mission statement of Malaysian Telecommunication policy which says that “The NTP will be the main catalyst towards the creation of an information rich and intelligent nation”. In Sri Lanka a communication policy was created by David N. Townsend and associates of USA with TRCSL officers. It was approved but then was differed in 2003. The practice until now has been to implement sections of the differed National Communications Policy from time to time as and when requirements arise. Therefore the creation of an ICT policy or the implementation of the already created National Communication Policy is essential.

5.2 Interconnection

The available laws are not sufficient to address the interconnection problems arising in the present day competitive environment, especially if new operators are licensed for rural areas. Therefore comprehensive and stringent interconnection laws have to be made by the regulator to hinder uncompetitive practices and to enforce them. Experiences of Bangladesh & Poland can be taken for the creation of interconnection rules for rural operators.

5.3 Reform

To keep up with the current telecommunication trends introducing reform is necessary. It is necessary for the regulator to have more independence by establishing regulatory body outside the Ministry. This will give the regulator greater autonomy to make independent decisions.

5.4 Tariff

Asymmetric interconnection charges are to be used for rural operators. This is in a way a cost based price structure where the high cost for rural network is compensated by providing higher interconnection charges to the rural operator making the rural projects profitable & attractive. Universal Service Fund can be used to create tariffs affordable for

the subscribers in uneconomical areas. But it can be expected that through economies of scale the loss can be evened out in the long run.

5.5 Resource Sharing

Sharing of infrastructure is necessary to reduce duplication of infrastructure and to lower the rural roll out cost. The example from South Africa can be cited where infrastructure sharing is performed successfully.

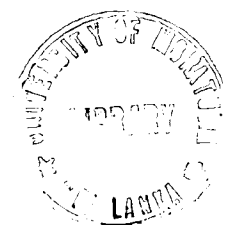
5.6 Licensing Policy

5.6.1 Uniform license

The current licensing policy is service dependent and the licensing structure is different on each other. The two WLL operators are charged annually a lump sum fee for limited exclusivity with rural obligations. The wired line operator and mobile operators are charged a percentage of annual investment annually without rural obligations. It is necessary to have a uniform fair for all licensing structure.

5.6.2 Unified access

The present licensing structure does not allow fixed operators or mobile operators to move into each other's territory. Technologically the boundaries between mobile & fixed services are getting blurred and also acquisitions & partnerships are making things complicated. Therefore it demands for a new licensing scheme, which will lead to unified access rather than unified licensing regime to address present day requirement and to promote rural penetration. Unified licence will complicate things with anticompetitive practices.



5.7 Promoting Competition

Past data show that competition has increased penetration globally, although it has not helped much in rural areas. The Sri Lankan example also shows that competition has helped to reduce the waiting list in the urban areas but not in the rural areas. But even though competition is promoted there has to be a balance between the market and the optimal number of operator. Too many operators may bring the existing operators financially unstable and also duplication of resources may happen.

5.8 Anti competitive Laws

In the competitive environment anticompetitive activities tend to take place. Therefore detailed anticompetitive laws have to be created and enforced.

5.9 Obligations (Introducing realistic rural obligations)



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This is a most common mechanism for rural rollout, practiced by many countries. These obligations have to be realistic. In India the obligation system failed but in South Africa it is practiced successfully.

The private investors intention is to gain profit. If uneconomical obligations are given, they will have to resort to some kind of cross subsidization or else the obligations will become unattainable. Presently in Sri Lanka only the WLL operators have rural obligations. This in a way is unfair and also they find meeting the targets difficult. Therefore realistic obligations have to be introduced to all operators. But this should not be the only solution for rural rollout because the operators select the most profitable areas where again the rural roll out will be affected.

5.10 Cross Subsidization and Access deficit Charges

Cross subsidization is now regarded as a poor, ineffective and anti competitive method of promoting universal access. Also with the introduction of competition international call rates have come down leaving little room for cross subsidization. Examples show that most cross subsidization schemes have failed to promote universal access. This is a least efficient system. Anti competitive practices such as subsidies from one service can be used to provide service in another area at low cost where eventually competitors will be driven out of business. Access deficit charging method also is being phased out from practice. In this method other operators pay for the access deficit of incumbent operator on providing low cost service to subscribers. This is also regarded as anticompetitive & inefficient.

5.11 Cost Based Pricing



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In this method rate rebalancing has to be done to align prices with actual cost for services such as decreasing international prices and increasing local charges. Information shows that this has been practiced successfully throughout the world despite to the warnings made that this would lead to lower penetration. But due to the market becoming profitable operators have more financial power to invest in network, which will lead to increased penetration. Therefore cost based pricing should be promoted.

5.12 Universal service Fund (USF)

For rural rollout it is necessary to establish a universal service fund and a proper administrative method to administer the fund. A similar arrangement is available with the External Gate way Operator licenses where an allocation is made for Vishva Grama Fund. Necessary legislations have to be made to determine administration of this Vishva Grama Fund. This funding mechanism has to be extended for other operators as well. The present cess fee charged on some operators can be reorganized to meet this.

USF fund is the best method and transparent method for providing universal access. Fund collected from various means (operators, government) can be used in targeted areas for providing infrastructure where the cost cannot be recovered from the subscribers.

A clear definition is required to what is expected as universal access. But this term is dynamic and will change with time. A more realistic target is required which should reflect economic condition and distribution of population. Chile, Peru and South Africa provide good examples.

Analytical models are available to define realistic universal access term. These models provide information on the difference between cost & revenue.

The USF funds can be collected through the following mechanisms.

- Funding from government.
- As a percentage of revenue from operator.
- From spectrum auctions & licensing fees etc.

The allocation of fund for subsidization can be determined using two ways. That is using financial analytical tools or by competitive bidding. from time to time In the competitive bidding process the market decides the subsidy and therefore the bidding process is the better method. It can be allowed to select several geographical areas. In this the bidder can select a combination of economically attractive and unattractive areas in a bundle.

5.13 New Technologies

It is necessary to create enabling environment for new innovative technologies by reducing regulatory barriers. As laying cables has become difficult for infrastructure rollout in rural areas, new technologies such as VSAT & Wi-Fi are being used by many

countries to provide rural access. New technologies (CDMA, CorDECT) are also available for low cost rural applications. These new technologies should be promoted.

5.14 Universal Access

The economic situation in rural areas of Sri Lanka does not guarantee sustainable universal service (Sec. 2.4). Therefore it is necessary to focus on universal access rather than universal service. Universal access is now shifting away from being an obligation by operator to a profitable business ventures. The concept of maintaining universal access for charity is phasing out and new business models are emerging. Environment has to be created by the regulator and the government, which will be conducive to implement these business models (These models are described in detail in section 4.24). To promote business in rural areas incentive management also has to be done such as:

- Fiscal and tax incentives.
- Import duty relief.
- Importing refurbished equipment etc.



5.15 Licensing Rural Operators

There is a large untapped market where 72% lives in the rural areas. The current licensing scheme does not promote rural rollout effectively. Providing regional licenses for the operator is necessary to increase penetration. For this the current licensing scheme has to be amended.

A competitive process has to be employed for the awards of rural licenses. To make it attractive exclusive license can be provided for a limited period to make sure that obligations are met and is beneficial to the investor as well as the rural subscriber.



5.16 Telecenters

The telecenter concept for universal access, as an information center has been in existence for a considerable period. There are many successful stories of telecenter models being used in developed and developing countries. These telecenter models are being used to uplift the society and empower them especially through internet. Special attention should be given to develop, local content and to address the needs of the people. There are appraisal methods available to do this such as Participator Rural Communication Appraisal methods (PRCA). John Andersan, L. Van Crowder, David Dian and Wendy True Love give some ideas on how the telecenters can be used as a hub to expand the access further. Universal Service Fund can be used to fund these projects where necessary. The telecenter initially has to start as public call offices with basic facilities and then move to advanced telecenter level through a learning curve. Local entrepreneurs can be employed with a subsidizing scheme. Franchise operation is a proven system that can be employed. The telecenters can be established in post offices, public libraries as well .



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5.17 Spectrum Management

With new developments in telecommunications and new requirements the demand for spectrum has increased. To cater to these developments it has become necessary to re allocate historically assigned frequency bands to enable growth in the telecommunication sector. There are several frequency bands that are involved with rural application that need consideration. Those are 800 MHz for CDMA application, 2.4 GHz & 5 GHz band for Wi-Fi applications (IEEE 802.11) and 1880 MHz to 1935 MHz band for DECT applications. 2.4 GHz & 5 GHz bands are being used for unlicensed operation for wireless LAN globally. Applications based on IEEE 802.11b includes office based WLANs, hot spots, commercial & community based Wireless Data Networks for internet access(Davis 2003).

Presently in Sri Lanka unlicensed operation is not allowed in these bands. In Sri Lanka there are several licensed users in the 2.4GHz to 2.43 GHz slot (spread spectrum band). In the 2.4 GHz band and also the adjacent channels of the band 2.4 GHz to 2.43 GHz are assigned for some other users. Therefore to promote Wi-Fi applications this band has to be cleared in consultation with operators. Clearing this band is vital as many new applications (eg. laptops) are being developed in this band. These new applications make frequency assignments complicated. Therefore unlicensed use in this band should be allowed at least in rural areas. Therefore it is required to make existing operators migrate out of the band, by providing alternate assignments and compensation.

5 GHz ISM Band (5.725 GHz to 5.850 GHz) is also a band that needs to be considered for rural applications. In this band fixed satellite services, radiolocation exists and therefore, out door applications could experience interference. But there are many equipment being developed for outdoor applications which can be used for rural roll out in this band. According to FCC unlicensed applications can coexist with existing services (Davis 2003).



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CorDECT is another technology that needs addressing where low cost equipment have been developed specifically for rural telephony . It operates in 1880 MHz to 1935 MHz band. A section of the band is also assigned to an operator. Therefore recommend to assign a frequency slot for CorDECT for rural applications.

There are many low cost equipment being developed in the 800 MHz band specially using CDMA which is a promising technology. But this band is assigned for other applications. Therefore it is necessary to free this band for CDMA applications.

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