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REVIEW ARTICLE

Green Communication :Current Scenario with special reference to Mobile Industry Growth and Potential

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ABSTRACT:

In the past two decades, mobile industry has grown rapidly, today providing network coverage to more than 90% of the worlds population and connecting more than 4 Billion people. The mobile industry is forecast to invest $ 800 billion during the next five years, out of which $ 550 billion of this is earmarked for mobile broadband, potentially connecting 2.4 billion population to the internet. Globally, the ICT sector contributed 16% of GDP growth from 2005-2011 & sector itself has increased its share of GDP worldwide from 5.8-7.8% the ICT sector's share of the economy is predicted to jump further with the introduction of 4G & 5G. We can say we are developing & growing, but have we forgotten something? Indeed yes, interdependent & mutually reinforcing pillars of sustainable development, social & economic development along with environment protection.

Keywords: Soil science, Ca, Cl, Na, K, ecosystem.

Introduction:

Telecommunication has experienced a tremendous success causing proliferation and demand for ubiquitous heterogeneous broadband mobile wireless communications. Nowadays, the number of mobile subscribers equals more than half the global population. Forecast on telecommunication market assumes an increase in subscribers, per subscriber's data rate, and the roll out of additional base stations for next generation mobile networks. An undesired consequence is the growth of wireless network's energy consumption that will cause an increase of the global carbon dioxide (CO2) emissions, and impose more and more challenging operational cost for operators.[1]

Such unprecedented growth in cellular industry has pushed the limits of energy consumption in wireless networks. There are currently more than 4 million base stations (BSs) serving mobile users, each consuming an average of 25MWh per year. Communication Technology (ICT) already represents around 2% of total carbon emissions (of which mobile networks represent about 0.2%), and this is expected to increase every year. Some broader perspectives have been discussed for different sectors against the environment.[2]

ICT SECTOR V/S ENVIRONMENT

Climate change is fundamentally altering the planet- The earth has warmed by 0.7^0C since around 1900 & will warm even more in the coming decades due to past emission.

- ✓ Impact of more extreme weather events on the reliability of telecommunication network.
- ✓ Increasing cost & scarcity of energy to power ICT equipments.
- ✓ Increasing the energy efficiency of telecommunication networks through digitisation.
- ✓ Manufacturing more energy efficient ICT products.

A greenhouse gas (GHG) emissions annually. By the year 2020, total carbon emissions globally From ICT sector is expected to rise upto 1.43 metric gigaton, accounting for around 3% of total emission of green house gases. These emissions include emissions from both the embodied devices and components during manufacturing, as well as from the use of devices and equipments. ICT in India accounts for 1.5% of India's total energy bill, which is excepted to go upto 2.7% by 2020. The very noticeable point is that, there are about 3,00,000 towers in India which consume an estimate of 3.2 billion liters of diesel annually resulting in 5360 tonnes of CO_2 emission per year, making the ICT sector to be the second largest consumer of diesel &of course carbon emitter after the Railways. Each tower consumes 3-5 Kw for equipment air conditioning & generators with BTS alone consuming 1.3-2.5 KW. [3]

MEASURES FOR REDUCING THE TELECOM SECTOR FOOTPRINT

1. **Network Planning**
   - Development of energy efficient networks.
   - Designing low energy base station sites.
   - Adopting distributed and integrated central office approach.
   - Use of intelligent shutdown technology.
   - Reducing the number of separate hardware components which would lead to reduction in energy utilization. [4]
2. **Infrastructure Sharing**
   - Tower sharing can save utilization of various resources like steel, cement, concrete, zinc besides optimising the use of power.
   - Antenna systems, transmission systems and sharing of base station equipment will allow operator saving to an additional 40% on top of available savings from passive infrastructure sharing.
   - Reduction in the number of generator sets resulting in less energy consumption besides reduction in noise, air& visual pollution.

3. **Adoption of Energy efficient Technologies**
   - Improving power amplifier efficiency, raising the base station working temperature, Radio technique, use of single RAN.
   - Use of device pool solutions such as MSC pool, SGSN pool, etc. will not only increase the network reliability, but will also increase the usage rate of equipment & reduction in the overall energy consumption.
   - Reducing mobile device cycle emission through design and recycling.[5]
4. **Improvement in Grid power supply**

Use of alternative &non conventional energy sources like solar/wind/ fuel cells may form an important source of energy for powering base station which may not altogether remove the requirement of DG sets, but would definitely reduce dependence on then. Due to precarious power situation, about 70% of telecom towers have grid/electricity Board power availability of less than 12 hours. [6]

5. **Use of Alternate Energy sources**
   - The move from diesel to solar energy source could result in savings of $1.4 billion operating expenses besides a total cut down in carbon emission.

- Wind powered radio base station does not require any feeders and cooling systems, resulting in upto 40% low power consumption.
- Natural gas usage based generation sets, is also a viable solution. • Fuel cells, the most promising for telecommunications is PEMFC (Proton Exchange Membrane Fuel Cell) which operates at lower temperature & runs at 40-60% efficiency. [7]

6. Utilization of e-Waste

Utilization of e-waste by recycling & re-utilization of phone casings, batteries & charges etc. can reduce the manufacturing cost besides saving the environment not only from deployment of resources in the manufacture of new devices but also will save it from the harmful effects of these pollutants.[7-10]

CONCLUSION:

ICTs are part of solution, not part of problem, & there should be enormous gains through the smart use of ICTs in virtually every single sector. The whole idea is'nt about the choice between using or not using technology, the challenges is to use it right. Green peace is calling on the telecom industry to usher this change proactively & lead the way to a sustainable future. Because,

" We do not inherit the earth from our ancestors, We borrow it from our children."

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