IMPACT OF MOBILE PHONES ON HUMAN ENVIRONMENT

INTRODUCTION

- Launched In The Early Nineties.
- Revolutionized Communication.
- Low Cost Utility Item.
- Indispensable Service.

STATISTICS

- 1.25 billion users worldwide.
- 10 million mobile phones are bought each year.
- India has emerged as second largest market for mobile phones.
- In 2004-2005, number of mobile phones over took number of fixed phones.
- Mobile penetration is 14%.

OBJECTIVE.

- To study the positive and negative impact of mobile phone on human environment.
- To discuss present remedial measures to minimise negative impact.
- Recommendations for future.

WORKING

- Work on electromagnetic radio waves.
- Three components: handset, base station and network operator.
- Handset has a transceiver that transmits voice and data to nearest cell sites.
- When the phones are turned on it registers with the mobile phone exchange.
- The mobile exchange will alert when there is an incoming call or message.
- Each network operator has a unique radio frequency.

IMPACT

In order to study impacts human environment is classified as

- Physical.
- Social.
- Aesthetical.
- Economical.
- Health.

PHYSICAL ENVIRONMENT.

Impact is caused in two stages.

- Production stage.
- End of life stage.

PRODUCTION STAGE.

- Utilization of non-renewable resources like aluminum, steel, copper, lead, nickel and zinc.
- Manufacturing of printed wire boards his energy intensive.
- Leads to large consumption of power.

END OF LIFE STAGE.

- PVC is burnt to recover copper metal from wires.
- Incineration releases highly volatile matter in air.
- Land filling results in loss of precious metals.
- There is problem of toxic metals mixing with soil and water through leachate.

SOCIAL IMPACT.

- Significant contribution in improving quality of life.

quality of life.
cies, leading to psychological feeling of security.
ing of security.
ng" has evolved.
eung and Wei, in Hongkong, there are seven factors of
ification sought through mobile phone ownership:
fashion/status, sociability, relaxation, mobility, immediate
mmediate access, reassurance and instrumentality.
instrumentality.

SOCIAL IMPACT.

- Key fashion accessory.
- Camera and video phones are used to cover breaking news.
- Can be used as mass communication device.
- Camera and video phones pose great threat to individuals privacy.
- Mobile phone etiquette has gained significance.
- Psychological impact on adolescents.
- Distraction and peer pressure in college.
- Increasing target of virus writers.

SOCIAL IMPACT.

- Misuse by terrorists: communication using Pakistan SIM cards, mobile bombs.
- Accidents caused by using mobile phones while driving.
- According to a study published in the *British Medical Journal*, drivers who use cell phones, even hands free models are four times as likely to be involved in accidents.

ECONOMIC IMPACT.

- 1% increase in mobile phone penetration results in 0.5% increase in FDI.
- Virtual office of businessman.
- In urban areas increases productivity of small and medium enterprise.
- It gives farmers access to national markets via internet.
- Farmers use mobile phones to operate hand pumps.
- Fisherman use mobile phones to get prices at different ports before landing there catch.
- Information regarding weather, sea conditions are provided to fishermen by network provider.

ECONOMIC IMPACT.

- *m-commerce*: anyone connected to a mobile network should be able to pay for goods and services and have the cost debited from bank account.
- *THEME GROUP*, Bangalore has developed a software to send donations across the country.

HEALTH IMPACT.

- Health impact can be due to:
- Exposure to toxic metals.
- Exposure to radio waves of certain frequency.

HEALTH IMPACT.
EXPOSURE TO TOXIC METALS.

- Exposure to toxic substances like: lead, copper, nickel, cadmium, arsenic, zinc, PVC.
- Direct exposure occurs during End of life treatment.
- Another pathway includes soil and water contamination from industrial release or landfill and associated leachate process.

HEALTH IMPACT.
EXPOSURE TO RADIO WAVES.

- Mobile phones operate in the range is 800-1800 MHz.
- Radiation absorbed is measured by *specific absorption rate (SAR)*. In USA, SAR limit is 1.6W/Kg averaged over a volume of 1 gm of tissue. In EU, the limit is 2W/kg taken over volume of 10 grams of tissue.
- Exposure can increase temperature in brain by 1˙C.
- According to *Spanish Neuro Diagnostic Research Institute*, exposure can open blood-brain barrier.
- Young children are more prone to radiation.

HEALTH IMPACT.
EXPOSURE TO RADIO WAVES.

- Exposure can lead to reduced sperm production.
- People residing near base stations experience frequent headaches, irritation, sleeping disorder and decrease reflex actions.
- There are very few reliable, well conducted, long range, epidemiological studies.
- To address concerns international bodies like *IEMGP, WHO, ICNIRP*, etc have published reports.

HEALTH IMPACT.

- Helps to access doctors, paramedics easily.
- Useful in emergencies like highway accidents.
- Useful for patients leaving alone like elderly parents.

HEALTH IMPACT.

- Mobile phones can interfere with medical equipments.
- 23% of instruments tested by Medical Device Agency, UK suffered electromagnetic interference.
- Evidence suggest GSM phones interfere less with medical devices.
- Mobile phones use should be restricted within 1m distance of medical devices.

AESTHETIC ENVIRONMENT.

- There is proliferation of base towers.
- Network providers do not share towers.
- Seriously affects landscape especially in tourist areas like beaches, hill stations, archaeological sites etc.
- No appraisal done before erecting towers.

PRESENT SCENARIO

- Average rate of replacement is 18 months.
- Manufacturing happens in sophisticated factories.
- Recycling and disposal is main problem.
- In developed countries there are companies which deal specifically with mobile phone recycling.
- In developing countries, recycling is done by hand or crude tools as environmentally safe technology is expensive.
- No regulation to govern the sector.

REMEDIAL MEASURES.

- Mobile phone companies signed a declaration at the *Sixth Conference Of Parties on the Control Of Transboundary Movements Of Hazardous Waste and Disposal.*
- Major industry players made a commitment to cooperate with the convention and other stake holders in the sector on the environmentally sound management (ESM) of end of life mobile phones.
- The initiative involves United Nations Environment Programme (UNEP), the Government Of Switzerland and 10 manufactures of mobile phones.

REMEDIAL MEASURES.

- Most companies have “*take back”* schemes that encourage customers to discard their used mobile phones at designated centers.
- As regards to exposure to electromagnetic radiation from mobile phones and towers the industry maintains there is no danger. It has an upper hand because none of the studies can establish with full certainty the linkages between mobile phone use and health effects.

RECOMMENDATIONS.

- Mobile technology is here to stay. With certain precautions one can use mobile phones safely.
- It will involve participation of manufacturers, public and government.
- Mobile phone packs should carry a health warning.
- Information should be provided regarding various toxic metals present and also about safe disposal.
- Design should be aimed at increasing the useful life of mobile phones and also help in safe and easy recycling.
- Manufacturers should help companies dealing with recycling by way of funds, especially in developing countries.
- Manufacturers should avoid promoting mobile phones among young children.
- Siting of base stations should take place with consultation of local people.

RECOMMENDATIONS. PEOPLE.

- Should think twice before buying new mobile phone.
- Should support companies that use clean technologies.
- Should not use mobile phones while driving.
- Should prevent use of mobile phones among children

RECOMMENDATIONS.
GOVERNMENT.

- Draft and enforce stringent laws.
- Undertake awareness programs.
- Provide incentives to mobile companies to setup necessary infrastructure at rural level.

CONCLUSION.

- An effective system of health information and communication among scientists, governments, industry and the public should be established.
- Information should be accurate and appropriate in its level of discussion and comprehensible to the intended public.

THANK YOU.