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Review Paper

Investigation of the Mobile Phone Revolution and its Impact on Environment

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Abstract

The mobile phone has become an important part of our life today. Nowadays, children to the elderly have become dependent on this technology. In such a situation, it has some positive uses as well as negative effects, which are directly and indirectly affect the environment and the social life of the people. Anxieties have been elevated with regards to the sustainability concerning cellular handsets and their impact on people's health and environment. This research paper will throw special light on the damage caused to the environment due to the increasing use and use of mobile phones in the present time. All the data and information introduced in this study were collected from a variety of sources of secondary information and different wellsprings of auxiliary information.

Keywords: Mobile Phone, Internet, Environment, Hazard, Smartphone Revolution, Social Impact.

Introduction

Until a few years ago, the necessities of the people were food, clothing, and shelter. Its availability was the measure of satisfaction among the people, but gradually health and education were also included in this list of citizens. Now along with all these things, the need for mobile phones and the internet has also started making its deep inroads in the lives of the people. The mobile phone has become the most important part of everyone's life today as if without its life is incomplete or stagnant. In the 21st century, mobile has brought a revolution in the field of communication. In this third millennium, mobile is being seen as an important tool to bring change in the way of governance. Initially mobile was used only as a medium of communication, but today it is being used by government agencies to not only convey important information to the people but also to provide the government services "anytime and anywhere" purpose is being done. The invention of the mobile phone is done by Martin Cooper, after many efforts, he put the mobile in front of the world in 1973. The first mobile phone was 2kg and was very expensive. Over time it became common to the common citizen. There are different types of mobile phones available in the market today, which provide variety from weight, feature, and look to price.

The Smartphone Users in the World: The population is also increasing day by day in the country, due to which consumption of food items as well as other essential things and pollution, social and personal problems are also increasing. The number of mobile users in the world is increasing rapidly due to the increasing population, increasing prosperity, and the competition to keep pace with the times. The current situation is that the number of mobile phones has crossed the Figure of the world's population. This year the number of mobile phones in the world has reached 7. 5billion while the world population is only 7. 2billion. According to Institute for Information and Communication Technology Promotion[1] (IITP) 3.3 billion people were using mobile phones, a number that is projected to grow to 5.2 billion by 2011. Kalil[2] said, Although it took the industry 20 years to sell the first billion phones, the second billion sold in four years, and the third billion sold in two years. There are now more mobile subscribers in developing countries than in developed countries. Given the phenomenal social and ecological expense of making new cell phones, it would appear to be legit to expand their life expectancy as far as might be feasible — but then, most telephones aren't strong or repairable.

The lifecycle of a cell phone starts with its producer. A cell phone is comprised of 60 distinct metals and metalloids, which all add to the fundamental parts of a gadget. To get these valuable metals and produce a solitary cell phone, 34kg of mineral should be mined, utilizing 100 liters of water and 20.5g of cyanide. The populace of China is approximately 143.93 crore of which 912 million persons use smartphones in the nation than any other country in the world. India had the second most smartphone users. The population of India is about 138 crores of which 439.42 million people use smartphones, "although less than half as many as China. These two nations are expected to continue to lead the smartphone user ranking, as China and India also rank one and two in the largest populations worldwide"[3].

The population of the US is approx. 33.1 crore and the smartphone users are 27 crores in the country. Indonesia's population is approximately 27.3 crore of which 160.23 crore people use the smartphone.

The Scenario of Smartphone Users in India: The number of mobile phones in India is more than the adult population of the country. According to the data of Telecom Regulatory Authority of India (TRAI)-2019**,** the number of mobile subscribers in India is more than 115. 14million. Whereas according to the 2011census, the adult population of India is about 108. 85 crores. According to TRAI, UP is at the top in terms of the number of mobile subscribers. There are more than 16. 85 crores, mobile users, here. Maharashtra is at number two, with 9. 26crore consumers. Andhra Pradesh is in the third position with 8.70 crores and Bihar is in the fourth position with 8.43 crores. Tamil Nadu is in 5th position. There are 8.18 crore users here.

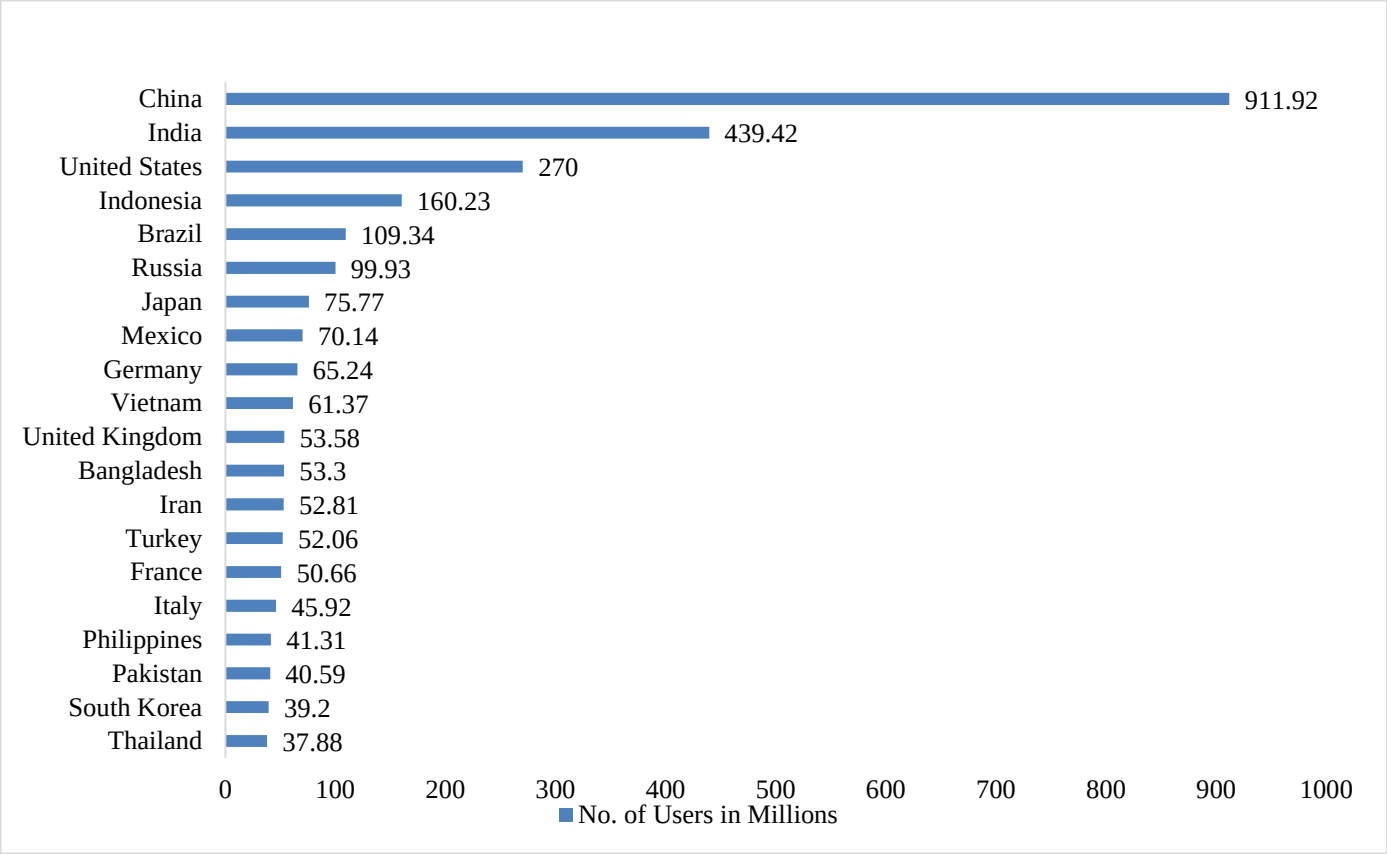

Figure-1: Smartphone users by country wide[3].

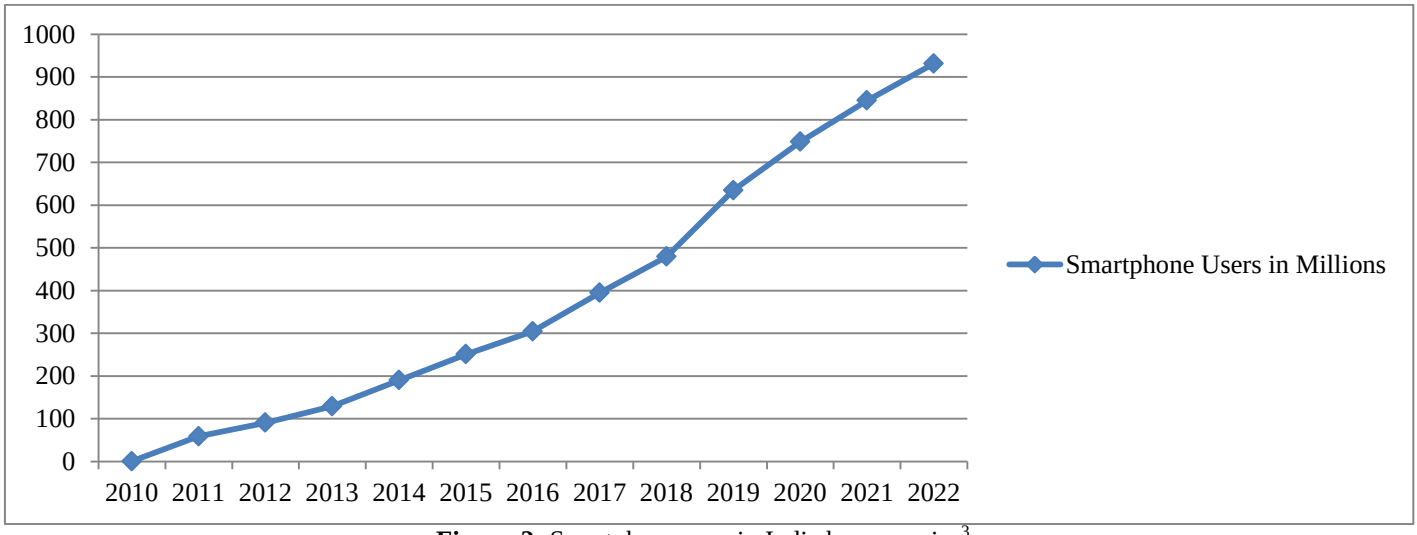

Figure-2: Smartphone uses in India by year wise[3].

The above graph shows the smartphone users in India from 2010 to 2022. The number of smartphone users in India has been increasing yearly. According to a report by News18, August 02, 2019, the number of telephone users in the country is more than 118. 35crore. Of these, the number of mobile users is more than 1161million. Talking about the telephone density in the country, there are 90. 11telephone users per 100 populations. These include 88. 46mobile and 1. 65landline users. The state with the largest number of telephones is Delhi, Where the density is 174.8. In the urban part of the country, 155. 49out of 100people have mobile connections, while in rural India this figure is 57.13. In the case of landlines, there are 4. 46telephone connections in urban areas and 0. 34in villages.

In terms of mobile users, Delhi is at the top in big cities. There are more than 5.29 crore, mobile users. This number is 3.80 crores in Mumbai and 2.56 crores in Kolkata. TRAI said that due to internet access and cheap data, the number of mobile subscribers is increasing. Many people have two phones or two.Today, India has been transformed into a big global market, continuously creating a new history of data in this matter. Many foreign mobile manufacturers have made India a big market and thus they are also earning a huge amount of wealth. Despite poverty and backwardness, the number of mobile phone holders in the country has increased at a rapid pace. According to an estimate, about 50 to 60 lakh mobile users are joining every year in the country.

With globalization, the competition in the market today is also huge. Today technology is also expanding rapidly at the global level. In such a situation, attractive mobile phones are coming into the market every day. Today mobile phones are available in the market with different charges and attractive and best features of companies. A market for mobile phones has made a place in our country. Earlier everyone couldn't buy a mobile, but with the changing times, it has become an integral part of human life. Today every person wants not only a mobile phone but a machine equipped with state-of-the-art facilities so that he can talk as well as fulfill other needs. Keeping in view the increasing needs and expectations of the people, companies are also bringing in the mobile market every year with updated and state-of-the-art features. In such a situation, people are eager to buy new mobiles even though they have a mobile phone or they can say that they buy.

Soo and Doolan[4] explains, the substances released to the environment that contribute to the toxicity indicator are largely influenced by the following factors: Reused materials' interest - The abstraction of resources for recycle is firmly founded on their monetary profits in the business that has an excessive market interest. Administration regulation - Reprocessing services will more often than not oblige to as far as possible laid out in the natural rules as it were. E-squander reusing framework - Additional natural effects brought about by transnational transportation execute keep averted through native reusing over e-waste.

However, "the use of mobile phones has grown exponentially; hence the total environmental impacts of mobile phones have increased significantly"[5]. The research found that harmful waves emanating from mobile towers are not only the cause of the death of birds but also a major cause of cancer in humans. Not only this, but it is also having a bad effect on our society. At the same time, mobile phones have also affected the personal, family, and social life of people. Due to the unnecessary love and dedication of people towards mobile phones, these relations are getting weakened. Young children, who till a few years ago used to play in the gum of the elders of the family, used to accept their rites or used to play in the streets and courtyards of the house, today they are confined to the corner of a room. Today they are addicted to mobile. Not only this, but older people also keep their eyes on mobile phones as the world. Kalil[2] says, "Several researchers and companies are exploring the use of mobile technology as a means to persuade people to engage in more healthful behavior."

"Unused parts of the cell phone are disposed of in the environment affecting all the elements of the environment, i.e., fertility or geological structure of the land, human health, wildlife, sea, and plant life"[6]. Robinson[7] "stated that improper disposal of waste mobile phones caused significant health effects and environmental degradation in the developing world. Mobile recycled wastes led to contamination of the soil, water, fish, and wildlife". Velmurugan[8], "the mobile phones may be harmful to the environment and health, and waste disposal issues may be associated with its discharge of radiation. Concerns have been raised recently about the sustainability of mobile phones and their effects on people's health and the environment".

Cocosila[9] "investigated the effects of perceived health risks due to the usage of 3G mobile phones". Barnett et al.[10] "assessed the awareness of precautionary advice contained within the Department of Health (DoH) leaflet about mobile phone health risks and public responses to it". Lakshmi and Nagan[11] "stated that cadmium may cause lung and prostate cancer, and is toxic to the gastrointestinal tract, the kidneys, and the respiratory, cardiovascular, and hormonal systems". Thomée et al.[12] "found that increase in the frequency of mobile phone usage was associated with sleep disturbances and symptoms of depression for men and women at 1-year follow-up". Aghav[13] was worried that "most of the people were unaware ofthe health hazard of continuous emission of radiation".

Methodology

All the data and information introduced in this study were collected from a variety of sources of secondary information and different wellsprings of auxiliary information. The sources are online data sets like Science Direct, Envirotech, and Statista. The web-based inquiry database gave auxiliary information like journals and concentrates beyond books, dailies, and magazines.

A portion of the data and information was gotten from web search tools like Explorer, Google etc.

Results and Discussion

Most of the mobile parts are made of toxic material which keeps accumulating in the ground. The amount of such substances in a phone is less, but by mixing the same crores of mobiles, they produce a lot of toxic substances. According to a report, using an ordinary phone for a year produces about fifty tons of carbon dioxide. In such a world equipped with technology, we are slowly making the earth poisonous, which will not be suitable for our coming generation. Taking this subject seriously, today man needs to slow down his speed and need to stop for a while and think seriously. We should try to charge our phones at least once in two years, three years, or four years. Changing it in just two years reduces the impact of mobile on the environment by about 20percent. Try to use old mobile phone parts once. At the same time, mobile phone companies should also keep some things common in all mobile phones, so that everyone can use the same technology and e-waste is collected at least. Such as mobile chargers, air phones, etc.

“While lack of advertence and data, specifically concerning ecological issues, isn't believed to be a focal variable in consumer decision making, ongoing examination uncovers environmentally significant data that definitely challenges customer insights in cell phone recycling. Life cycle ecological evaluation shows that the vast majority of the net environmental contrast emerging from consumer removal decisions originates from the positive advantage acquired from dependable disposal, rather than the negative weight emerging from the reckless”[14,20]. The Public communication regarding ecological troubles is itself a subject of impressive examination. The space of message outlining is specifically compelling here. In its most broad way, message outlining is a wide and multifaceted point. Here, we take a somewhat straightforward meaning of an edge to mean a general thought that sorts out and forms an ecological communication. The least complex and utmost normal component of message outlining is that of decidedly rather than adversely outlined messages—otherwise called gain and misfortune outlines, individually.

In the ecological conversation compass, gain-outlined communications accentuate the fantastic outcomes of a specific conduct or game-plan, though misfortune outlined messages pressure unfortunate results—frequently, explicitly, these are neglecting to act in a specific way communicated within communication. Davis[15] "extended the idea of ecological communication outlining to likewise join the "focus on" those shall be impacted on the activity or indecision of the communication beneficiary. That is imagined as far as the impact on current versus people in the future, or all the more by and large in a present moment or a drawn out setting. The third part of outlining, connecting with how activities are outlined, was viewed as less compelling on aims and eventually conducts".

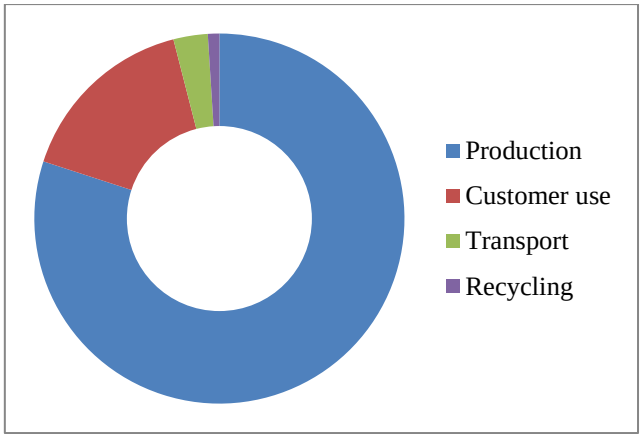

Figure-3: Greenhouse gas emissions of Smartphone.

The above chart shows that eighty percent of the carbon impressions of cell phones are made during the creation interaction, with sixteen percent represented by usage during its lifespan and the rest of shipping outflows attainment it from provider to buyer. The report of Irish News[16] “Cell phones and server farms are harming to the climate and will have the greatest carbon impression in the tech business by 2040”. “That makes it one of the most asset concentrated items available, containing as it does such valuable metals as aluminum, cobalt, copper, gold, palladium, platinum, silver, tantalum, tin, tungsten, and others”[17]. One more gigantic ecological issue presented by cell phones is what befalls them after their life expectancy. In the present consumerist society, that is where mechanical advances and style impulses make makers race against one another to deliver more astute, slimmer, and more alluring telephones, individuals regularly "redesign" their old telephones while they are still entirely workable. This prompts an extraordinary measure of preventable and impractical waste. Not exclusively does the plastic lodging of the telephone add to the risky issue of micro plastic, however there's a much more noteworthy issue: e-squander. Less than sixteen percent of all e-squander is reused every year, which means a lot of those previously mentioned valuable materials end up in the landfill.

Cell phones create more ozone harming substances than some other shopper electronic gadgets; despite the fact that their carbon impression is humble contrasted with the principle culprits of a dangerous atmospheric deviation, in particular the energy area and transportation. All things being equal, digging for parts is profoundly tricky, in light of the fact that other than defiling the climate, the interaction annihilates environments and creates tailings, harmful results which saturate the dirt and water[18]. It isn't intelligent that Bees and different creepy crawlies would now out of nowhere cease to exist because of infections and regular parasites.

This proposes one more variable has been acquainted with their current circumstance that disturbs their safe framework. Sahib[19] says, this man-made variable is the portable pinnacles and cell phones.

Conclusion

The world is amidst a versatile upheaval. Buying a mobile phone, a decade ago was a dream for a large section of the people of the country; today such phones have become garbage in homes. People are starting to feel insulted in carrying these phones which provide limited facilities. Now that most people have two or more mobile phones, surely one of them may be unusable. At the same time, some people throw the old mobile in the garbage or sell it after taking a new mobile phone. Nevertheless, as the number of unusable mobile phones is increasing, some waste is also certain to be generated from it, which directly and indirectly harms the environment. This is a form of e-waste. This type of waste reduces the fertility of the land and remains buried in the land for a long time. Due to this the amount of carbon dioxide in the environment also increases. At the same time, there has also been a discussion about the tower installed for the mobile phone network. Humans have moved towards 2G, 3G, 4G, and now 5G. The ill-effects of these networks on the animals living on the earth have been discussed frequently, which was also shown through the Bollywood film "Robot 2.0".

It is obviously said by the World Health Organization in its 2013 report that "openness to the radiofrequency (RF) fields emitted by using cellular phones are for the most part multiple times more than that discharged from base stations, and noticed that examination had only been directed on the potential impacts of cell phones, for example, electromagnetic impedance, street auto collisions, disease, and other wellbeing related impacts". "All cell phone towers discharge microwave radiations, which are in the radiofrequency radiation (RFR), part of the range of electromagnetic waves. However RFR, similar to Ultraviolet (UV) and Infrared light, is a wellspring of non-ionizing radiation, these radiations, along with ionizing electromagnetic radiations, for example, X-beams, gamma beams make up the electromagnetic range. The radiofrequency of the electromagnetic waves went from 100-kilo hertz (kHz) to 300 Gigahertz (GHz). Radiofrequency radiation is a wellspring of nuclear power and lacking portions, has every one of the known impacts of warming on natural frameworks"[21]. To limit these harming impacts, the two producers and customers should revise their propensities to endeavor towards a more manageable and less ecologically unsafe cell phone model.

Mobile phones are proving to be dangerous not only for the environment but also for human life personally. Many types of diseases are arising from this, in such a situation; a person should try to minimize his dependence on mobile phones. And if you have to talk for a long time, then use earphones, so that radiation can be avoided. At the same time, we should try that instead of giving mobile in the hands of all the members of the house, the common phone should be used. While buying a mobile, it should be kept in mind that takes a mobile phone that is suitable for the next 4 to 5 years. Along with this, taking this matter seriously, the government should also take suitable steps for e-waste management and special attention should be paid to their recycling.

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