

Impact of Technology and Development on Environment Health

Dr. P. Revathi

PG and Research Department of Botany, Kongunadu Arts and Science College,
Coimbatore-641 029, India.

Abstract:

The advancement in technology indicates away from nature and recently it converts seriously against nature. Though the technologies and green revolution in agriculture eliminates the food scarcity, some of the serious issues prevailing such as poisonous of food by chemical fertilizers, loss of genetic diversity and loss of wild variety in crop plants, in the name of genetically modified plants, susceptible to various diseases beyond the loss of employment for the workers. Though business becomes cost-effective, smart, and sustainable, the loss of wild varieties and loss of genetic diversity is irreversible-harm to nature. Hence, technology development is moving at the same point and indispensable innovations are needed to restore the healthy environment and healthy long lives on the earth. The study argued that consideration of these failures of technology towards environment and development at early in the design process will assist inventors and entrepreneurs in avoiding pitfalls later in the scientific emoluments. Also this study suggests to overcome these consequences in possible ways in this civilization for better health and habitat. Though communication, work and education are almost impossible without technology today, human population explosion and their sophistication in the name of development make this world unfit for future generations is a bitter truth.

Keywords: technology development, environment conservation, nature, sustainable utilization

1. Introduction

Technology is the knowledge of science that gives new and innovative ideas to build incredible tools utilizing in various applications. The research and experiments conducted in science laboratories lead to the designing of various techniques and devices. Knowledge about science also helps in understanding the impact of technology on the environment and society. Though technology has paved the way for a better living, its weakness is also cannot be ignored. Excessive use of technology has also contributed to serious health problems due to idle lifestyle including obesity and visual impairment. Besides, it makes people confined socially rather than connecting them. It has also led to decreasing employment opportunities where the single machine can replace many workers. New technology and innovations in original technology has been credited with solving environmental problems by mitigating the effects of pollutants and has been maligned as a source of increased pollution [1]. The continual use of technologically advanced equipment as well as the process of their

production has indirectly led to increasing biodiversity loss, climate change, global warming and all types of pollution which ultimately disturbing the balance of nature. The rising pollution has become the cause of several health issues and ecological imbalance.

The sustainable technology development programme has begun to make inroads into one of the most urgent in all needs concerning sustainable development for innovation in the innovation process itself [2]. Since it is being changed from the beginning in the name of development, it is mostly concerned for sophistication. There are different countries in the globe with different economic status, but ultimately the human adored to keeping his generation on the earth as well as with unique heritage and civilization. The newly adapted sophistication in the last two decades is making human civilization reached its peak and reinventions and innovations are needed for rectifying the ill effects due to the same. Keen understanding of ecological balance and impact of technology and sophistication on preferred habitat is most urgent in this century. Hence, the major recent developments in the world and their eminence is discussed in this perspective.

2. Technology behind the Environmental Pollution

Tortuously the technological development causes the destruction of wild varieties of living things in both plants and animals by the way of civilization which can't deny the necessity of technology. The application of technology in crop production particularly for the highest nutrient content in order to fulfil the food demand. Alternate food sources with disease-resistant varieties have emerged by the technology, but the importance of biodiversity was ignored. Altogether the advancement in technology indicates away from nature and recently at the last two decades it converts as against nature. Coinciding with nature makes our lives healthy and suitable for life. Unless otherwise, the lives may lose its environment as well as diversity, as it is understood in different climatic changes and ill effects around us.

2.1 Literature: Effect of pollution

The environmental hazards are linked with the technologies which have been utilized in processing and production fields. The direct and indirect magnitudes of air pollution comprises negative health impacts of living beings and global temperature to rise. Recently in the last two years there have been many forest fires happening all around the world due to the earth's temperature hike. Moreover, the World Bank reported that net loss of global forest between 1990 and 2015 was 1.3 million km [3]. The main reason is for agricultural land, sorting off trees for fuel, furniture and destruction for industry construction and residential areas, stimulated by growing population burden. The green plants not only give oxygen and remove carbon dioxide but also being habitats for many wild animals and destruction of forest causes species extinction indeed. This idea is supported by WWF [4], who have stated that although technology is a solution enabler, it is also part of the problem. Since the beginning of 21st century, the manufacturing of electric vehicles has emerged due to yearning of environmental safety and government incentives also encouraging plug-in vehicles, tax credits and subsidies to promote the introduction and adoption of electric vehicles [5].

Over 30 countries, six major vehicle manufacturers and other actors, like cities, set out their determination for all new car and van sales to be zero-emission vehicles by 2040 globally and 2035 in leading markets, accelerating the decarbonisation of road transport, which currently accounts for about 10 per cent of global greenhouse gas emissions (UN climate change website). These cops can produce action plans (Bali action plan, 2007), mandates (Berlin, 1995), protocols (Kyoto protocol, 1997), platforms (Durban, 2011), acrimonious breakdowns (COP 15 Copenhagen, 2009) and agreements (Paris, 2015). But the rise in the atmosphere's greenhouse-gas content and the associated warming of the climate continues in spite of them—even when, as so often, they are hyped as the world's last chance.

Intense cyclones, monsoon rains and floods hit highly exposed and densely populated areas in South Asia and East Asia and led to the displacement of millions of people in China, Bangladesh, India, Japan, Pakistan, Nepal and Viet Nam in 2020. Cyclone Amphan, one of the strongest cyclones ever recorded, hit the Sundarbans region between India and Bangladesh in May 2020 displacing 2.4 million people in India and 2.5 million people in Bangladesh (UN Climate Report).

3. Technology excretes in space

The rising population of space debris increases the potential danger to all space vehicles, including to the International Space Station and other spacecraft. Currently, about 27,000 officially catalogued objects are still in orbit and most of them are 10 cm and larger [6]. Human journey into space began in 1957, when the Soviet Union (today's Russia) launched Sputnik, the first ever artificial satellite. Since then, thousands of rockets have been launched, which have put into space numerous satellites, spacecraft, and space stations. Not all of them are functional today, nor has everything been brought back to Earth. Several of them, their parts, and random objects such as nuts and bolts are still up there as space junk (The Hindu- April 4, 2021).

Space activities releasing the various undesirable pollution contamination and elements to the different parts of the space environment [7]. Technologies to remove space junk are also being developed. Cleaning the debris that already exists comes at a high cost.

4. Vehicle Emissions and Environment

Scientific and systematic studies reported that air pollution in developing countries accounts every year for thousands of excess deaths and several billions dollars in medical costs and productivity loss. It is significant impact to distinguish between technology-forcing and technology-following emission standards have been considered when fixing the restrictions on vehicle emissions. Though preferred perceptions are technologically feasible, the standards has not yet been demonstrated in practice [8].

Market failures associated with environmental pollution intend to lead innovation and diffusion of new technologies. These collective market failures pay for a solid foundation for public policies that support emissions reduction as well as the development and implementation of environmentally beneficial technology [9]. Manufacturers envisage the failures and trace for new technologies and should commercialise to meet these standards [8].

Though communication, work and education are almost impossible without technology today, human population explosion and emissions make this world unfit for future generations.

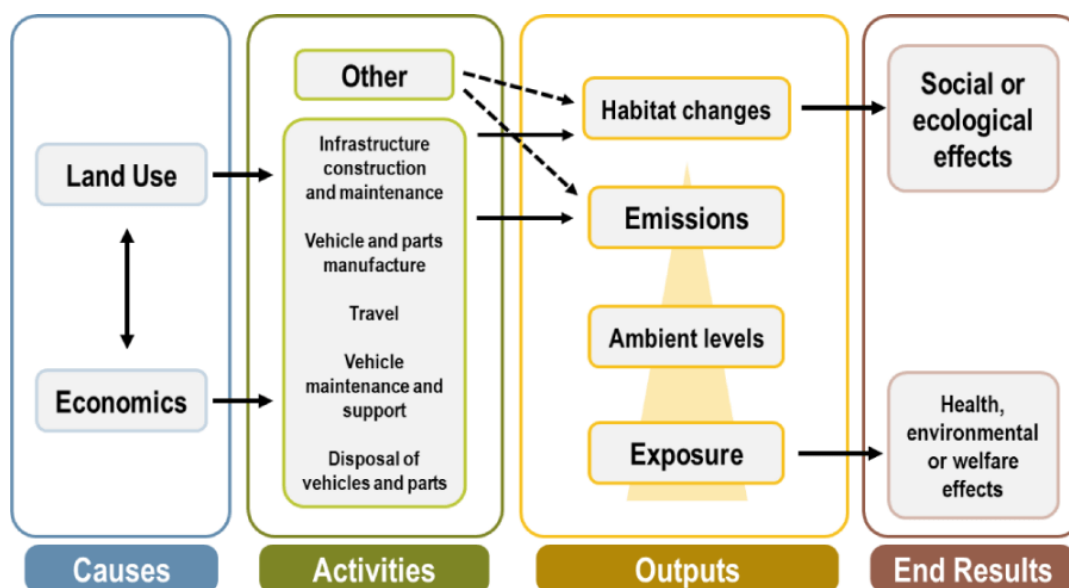
Emission regulation was in Bharat Stage VI (BS VI) with the emission of CO is 1.0 g/km, 0.10g/km of Hydrocarbon, Nitrogen oxides is to be 0.06g/km, Particle matter should be 0.0045g/km for gasoline vehicles. In the case of Diesel vehicles it was CO-0.50 g/km, HC and NO_x- 0.17g/km (0.080 g/km for NO_x separately) whereas particle matter was the same as gasoline vehicle emission. Though the emission regulations restrict vehicle emission and vehicle manufacturing technology, the number of vehicles on the roads due to the over population and population accumulation in cities causes serious concerns in the quality of air.

4.1 Discussion

Clinched out of it, now the state of new vehicle inventions and development is in consideration to revise for control the emissions as well as to use alternate fuel, but population explosion is also one of main reasons to reflect. This study is suggested to follow the population density regulation in all cities for minimizing the pollution and related effects. In other words, the emission regulation and other regulations to control the pollution should be based on the density of the population. The vehicle in rural areas where the population density is very less and vehicles in cities are cannot be considered as under the same emission regulation. This does not mean again the regulation relaxation is there for rural area vehicles, but the more population density nullifying any kind of regulation and so on.

Emission impacts fall within three categories that is direct, indirect or cumulative led to much controversy in environmental policy, the role of transportation, and mitigation strategies are shown in Figure 1. In India, Bharat Stage VI (BS VI) is the new emission standard that all vehicles in the country will have to adhere to from April 1, 2020, whereas the sale of BS-IV vehicles also ceased.

Figure 1: Environmental dimensions of transportation [10]



5. Industries and Sophistications

Environmental technologies are defined as all industrial goods and services that may foster environmental protection and physical resource efficiency in industrial settings mainly. It also should generate compliance with environmental regulations and prevent or mitigate pollution by managing or reducing waste streams and remediating contaminated sites. It is being applied to design, develop and operate environmental infrastructure; and afford the provision and delivery of environmental resources [11,12].

Inventions and innovations of the last two decades made the man enjoy the sophisticated lifestyle which causes a series of chronic non-communicable that can have near life-threatening consequences. There are a list of modifiable risk factors to avoid these kinds of diseases for controlling four major diseases such as cardiovascular diseases, Diabetes, Cancer and respiratory diseases causing around 70% of all deaths globally.

Technology allows the development of industries and industry based products to meet the demands. But increased wealth and *technological sophistication* has brought many new white collar crimes and inevitable flaws in the environment. Unemployment and related stress makes the man face different health issues on one hand and on the other side the wealthy person's sophistication like using separate vehicles, using of AC, fridge emitting greenhouse gases which causes ozone and natural protection exhaustion ultimately.

6. Technology: what does in Agriculture?

In the last 50 years, agriculture technology has seen a huge growth in cultivation, crop protection, harvesting, preservation and marketing. But still the applied technologies are not giving the answer for the health issues and environmental pollution caused by chemical fertiliser and harmful pesticides and weedicides. The newest technologies in agriculture are able to map the changes in precipitation, temperature, crop yields, plant health, and so on. It undoubtedly enables the conservation of money, effort and time. Additionally, main technological innovations in agriculture have focused on areas such as indoor vertical farming, automation and robotics, livestock technology and modern greenhouse practices. Nowadays, the alternative for chemical fertiliser for avoiding the ill factors is led towards the organic farming which was there in conventional agriculture before this drastic growth of technologies. So this technology does nothing more than the understanding of nature and the importance of its relationship with the same. Some of the serious issues prevailing by the technologies and green revolution in agriculture such as poisonous food by chemical fertilizers, loss of genetic diversity and loss of wild variety in crop plants, in the name of genetically modified plants it is being susceptible to various diseases beyond the loss of employment for the workers.

Recently, among other technologies, organic farming, GIS software and GPS agriculture, satellite imagery, drone and other aerial imagery, farming software and online data, merging datasets in modern farms have significant benefits from the ever-evolving digital agriculture. These benefits include reduced consumption of water, nutrients, and fertilizer, reduced negative impact on the surrounding ecosystem, reduced chemical runoff into local groundwater and rivers, better efficiency, reduced prices, and many more. Though business becomes cost-effective, smart, and sustainable, the wild variety and loss in genetic diversity is irreversible harm to nature [13].

Technologies such as greenhouses, solar food dryers, threshers, grinders, storage, and packaging equipment can make lavish food systems in developing countries more efficiently. However, there are a myriad of technological, infrastructural and operational challenges that hinder the successful design and commercialisation of such products [14]. In the above discussion, the authors emphasized the design phase challenges encountered by agricultural technology. Additionally, the study indicates the concept of these failure modes generally occur between design ideation and the launch of the product.

Progress on food security and nutrition has slowed down. In 2020, 48.8 million people in South-East Asia, 305.7 million in South Asia and 42.3 million in West Asia are estimated to have been undernourished. Asia accounts for more than half of the global total.

In 2019, approximately three fourths of mangroves in Asia were located in Bangladesh (24%), Myanmar (19%), India (17%) and Thailand (14%). Mangroves provide coastal protection but are under pressure from human activities, increasing sea levels and water temperatures, as well as through change in the frequency and intensity of precipitation and storm patterns [15].

6.1 Literature

The global farming communal is facing a multitude of problems to maximise the crop productivity. In spite of successful research on new agricultural practices concerning crop cultivation, majority of the farmers are not getting upper bound yield due to several reasons [16]. Over the centuries, as farmers have adopted more technology in their pursuit of greater yields led by advances in robotics and remote sensing technologies. But, the big hurdle to commercialisation of robotics in harvesting due to the variety of shapes, sizes and colours of tomatoes, for instance, makes picking them a tough challenge, even though there is already a robot available to remove unwanted leaves from the plants [17]. These technologies allow farmers to be more profitable, efficient, safe and environment friendly.

Climate change is rapidly altering contributing to exist long term environmental problems groundwater depletion, soil degradation which also will affect the agriculture food production system and increasing the variability in precipitation, more drought and floods is likely to reduce yields. Scientific evidence that chemically active pesticides are residually present on food, in water supplied, in the soil may interfere with growth and development of human and livestock. World farm land is becoming increasingly unsuitable for production, 25 percent of all farmlands is already rated as highly degraded and 44 percent is moderately degraded due to the chemicals accumulation and related water stress. Population growth will boost demand for food, approximately 800 million people worldwide suffer from hunger, 8 percent of world's population (650 million) will still be undernourished by 2030. Demand is continuously growing, need to be produce 70 percent more food [18]. This prospects suggested that the cultivation of crops is to be encouraged rather than industrialization and wild varieties of crops should be considered as medicinal crop plants and their cultivation should be encouraged with different schemes.

7. Technology: What does in Food?

There are three key areas such as consumer, industry and supply chain-related to procurement in which food technology innovations are beginning to deliver completely new and novel approaches along the value chain. Food technology is the most required application to the screening of suitable safe food from the selection, preservation, processing, packaging, distribution, and up to the use. Food scientists and technologists apply concepts and contemporary scientific disciplines including chemistry, biotechnology, engineering, microbiology, and nutrition to the study of food to improve the safety, nutrition, wholesomeness and availability of food. Absolutely, an increasing focus by consumers on sustainability, health and freshness has placed significant pressure on the food industry to innovate which can meet their ever-increasing demands.

All the technologies which ultimately aims to get more benefits from the same resources for facing the demands of overpopulation absolutely. These technologies tried to do so for certain extends which gives food with loss of nutrition and certain technologies along with chemicals in food industries causing diseases like cancer, auto-immune disorders in children and adults. Obviously it indicates the freshness of food with nutritional completeness will be fulfilled only through natural supply. The meaning of eating well is changing over the different economic status of the people, age, work, society, gender and of course the availability. A research report published in 2019 (Figure 2) says the men taking food for their enjoyment mostly and women eating for health and within their budget.

7.1 Literature

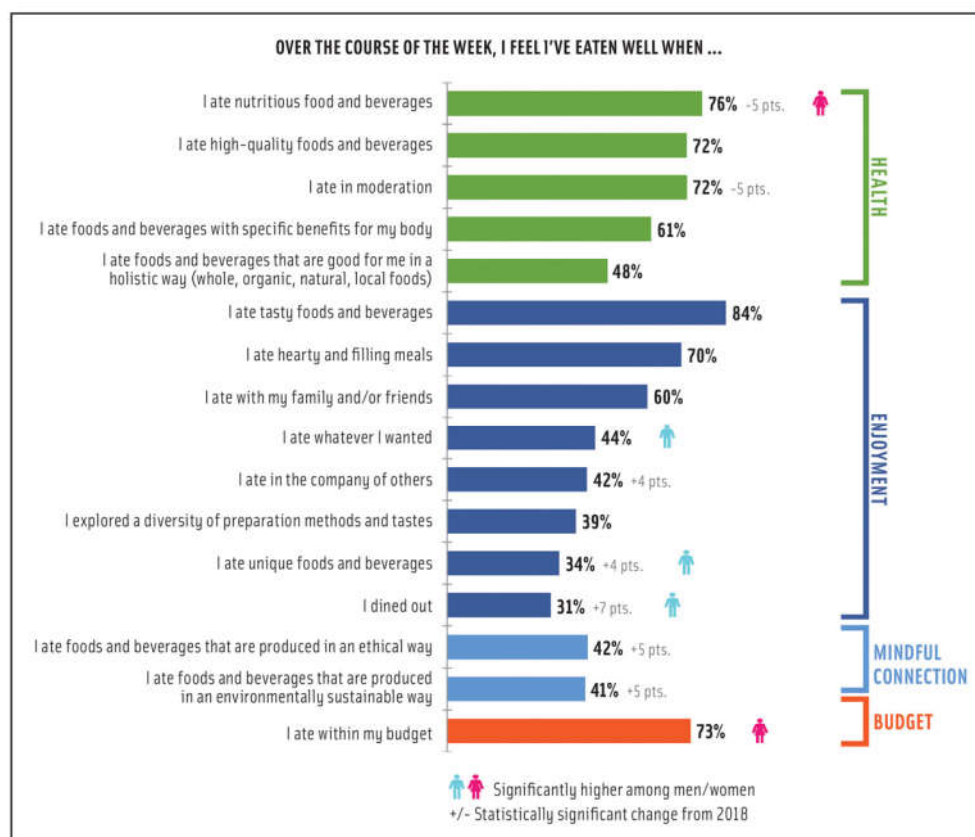
Despite the fact that the food industry is usually associated with low research intensity and poor technology adaptation, several emerging trends and demands may change this, including increasing consumer demand for fresh vegetables and fruits, organic products, greater traceability information and a desire to reduce meat consumption and improve animal welfare [19].

In the press report of Food business news (Boston) in February 2021, Sam Danley hoarded that the technology, bioinformatics, traditionally has been used in pharmaceutical applications but may offer opportunities for food and beverage companies looking to accelerate ingredient discovery and to improve understanding between potential ingredients and their impacts on human health. Alternative protein technologies, Redefine meat (meat alternatives) that address multiple sensory factors may offer the most promising path forward. Marketers of plant-based products are drawing closer to achieving price equality with animal-based products, but opportunities still exist to improve the taste, texture and color of alternative proteins, said Dr. Joshua Haslun, Senior analyst at Lux Research. From the first agricultural revolution to the age we find ourselves in now, technological advancements in food production have enabled human civilisations to thrive was discussed on Analysis of Food processing technology publication issued in May 2021, the topic entitled “Growing pains: new issue of just-food out now!” .

Food is an exceptional product and its import and export trade has vital economic consequences for both developed and developing countries [20]. Marketers concentrate on business improving factors rather than nutrients, safety because for success in creating a scalable product. Though some companies/industrial products emphasise the nutrients and other benefits utterly for advertisement and certain others follow the same tactic for business

success. Consumer preferences and demand has led to the year-round availability of many agricultural products and intensified the pressure on businesses to provide details on product-specific attributes such as quality, safety, authenticity, traceability, provenance and conditions of production and supply [21]. Hence, food manufacturers play a pivotal role in assuring product safety and identifying possible hazards in the processes still, the natural availability of nutrients and benefits could be afforded only from nature. Therefore in order to meet the food demand, industrial production is not the health-valuable solution, by this study it is suggested that the green industries (Forests and cultivation) is to be increased and implemented with various schemes to reach maximum benefit from Nature.

Figure 2. Essential and Important Components of Eating Well. (From The Food Marketing Institute 2019)



In developing and poor countries, the population explosion is greatly moving up and also their food demands trekked them to fill the stomach but not for getting all nutrients. These countries are home to the highest number of under-nourished people in the world. Despite the good agricultural production status, 14 per cent of India's population is undernourished, according to the State of Food Security and Nutrition in the World, 2020' report. In pandemic situations, food security has deteriorated as a result of economic slowdowns threatening quality and access to food for the poor. Hence, scientific inventions and technology development needs to focus and to revise available advancements in food industries and regulations to get fulfilled nourishments for all.

8. Technology: What does in Medicine and treatment?

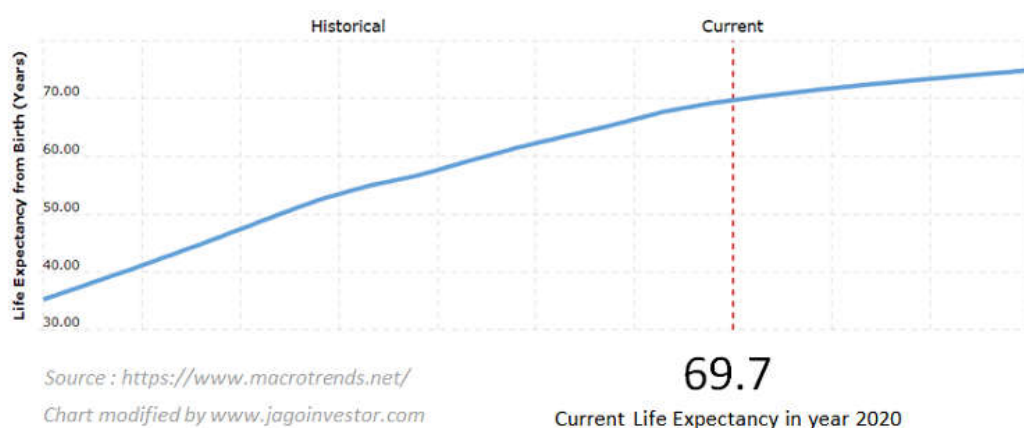
Innovation and technology play an essential role in sustaining health in the medical field. Medical technology is orientated in areas like pharmaceuticals, biotechnology, information technology, the development of medical devices and equipment have all made significant contributions to improving the health of people all around the world. Through this technological incorporation with expanses of disease prevention, surgical procedures, better access to information and medical telecommunications, the medical industry and patients around the world have been continuing to benefit.

Manipulated efficient vaccines, drugs invention and organ transplantation are of greater leap in the medical field. It improves the human life expectancy as well as destroys microbes around us or it creates the incidence to modify genetically into its ecotypes. This is the way of speciation and provides more vigour microbes in the earth like SARS and its ecospecies. Evolution by innovative drugs rather than nature subtlet the world today abruptly.

In addition to that, innovation is needed in prevailing technology and medical applications to change the adverse effects and bottlenecks such as the side effects by medicine, early on- sets of diseases and demand in research on preventing drugs of challenging diseases and disorders. Though technology uplifts our health so far, the lifetime period, healthy lifestyle and fitness have been robbed which will be straight back if the lives are nature-adjoin.

Drugs in the civilised world abruptly increase the life expectancy of human beings causing population explosion and pollution to the environment (Figure 3). Health and longevity is enhanced by medical technologies, by understanding the potential of various natural and mimicked synthetic compounds, by medical innovation (discovery and availability of new drugs) but also by addressing problems like smoking and obesity some reports showing the reduced human life expectancy, the population density is much more than expected in the world.

Figure 3: Life expectancy in India from 1950 to 2050 [22]



Recent decades have witnessed major advances in medical technologies that have been responsible for earlier and more accurate diagnoses, more effective treatments, and the ability of people to live longer, healthier lives [23]. The benefits of medicines are helpful when using them, such as lowering blood pressure, curing infection, or relieving pain. The risks of medicines are the chances that something unwanted or unexpected could happen to life. Risks could be less serious things, such as an upset stomach, or more serious things, such as liver damage (FDA).

Traditional strategies, including education, guidelines, and protocols, have led to only limited progress without technology by many reasons. Detailed computer decision support tools that incorporate the best evidence may advance our research and care, but their value needs to be documented in carefully conducted studies. Some serious rethinking and restructuring of our clinical research and care delivery systems will be necessary to assure the profession and the public that we continue to do more good than harm [24]. Technology provides benefits to patients, but it also brings significant risks that can threaten patient safety.

8.1 Literature

In the medical industry, there are more than 500,000 technological devices and equipment's available used in hospitals and other healthcare departments. In order to improve the health care of patients, medical devices including an insulin pump, digital thermometer, blood glucose meter, pulse oximeters, wireless brain sensors, smart inhaler, and many other advanced equipment have been practiced in the current medical field. The lasers can damage the cells and other internal organs in our body. Recently, the patients contact doctors through online and getting suggestions without the check-up which can be wrong and can be dangerous for the patients' health [25].

Antibiotic resistance caused by effect of medications taken for severe infections, complications, longer hospital stays and increased mortality [26]. Studies have indicated that antibiotics may also induce cancer generation by disrupting intestinal microbiota, which further promotes chronic inflammation, alters normal tissue metabolism, leads to genotoxicity and weakens the immune response to bacterial malnutrition, thereby adversely impacting cancer treatment [27]. Extensively drug-resistant tuberculosis has been identified in 84 countries globally [28]. Similarly different drug resistance making the health worse to get other disorders as well as early mortality. Medicine and treatment knowledge, availability of vaccines for various threatened diseases are boons for human population. But, based on understanding of complications in recent drugs and technologies this prospect proposes that the people should be directed to traditional medicine for less complication whereas severe and intensive health condition is to be guide for the allopathic treatment and chemical based drug.

9. Conclusion

Nowadays, the research in science and engineering is towards how to reduce pollution, it means how to replace the already existing problematic side of each technology. It also makes us go to conserve biodiversity and to avoid the problematic technology upsetting

nature and comfort as well as to make alternate plastics rather than how to reduce the plastic usage, so the research is to re-search for the better from already existing technology.

The advancement of newer is not possible in this well-civilised scenario and not going to give a fruitful solution in presence of jeopardies related to advancements. Now, the replacement of existing is our technology development which indicates the advancement is in stationary phase after a long leap. Hopping in a same place of scientific development to maintaining balance in present tasks. Inventions may be the leap but innovations are hops over the same to reduce the risks in the inventions. In other words, technology indeed has given ways to the enhanced and sophisticated lifestyle and contributed towards the growth of economies. But technology development now is in the phase of repairing the effects caused by the same. It is being in a stationary phase after its drastic progress.

In addition, the imbalance in nature, resource scarcity and demand is kicking-up the country's economy as well. Though the changes are only unchanged, the changes for wellness lead to profuse illness. Hence, technology development moving in a same point and necessary innovations are needed to restore the healthy environment and healthy long lives in the earth. The study argued that consideration of these failure modes of technology and development at early in the design process will assist inventors and entrepreneurs in avoiding pitfalls later in the scientific emoluments.

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