
Impact of nanotechnology in society

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Abstract

Nanotechnology is the term used in those areas and sections of science and engineering where we study at dimensions and Nano level. The word nano means 10^{-9} which is a very low value. With the term of nanotechnology scientists can modify molecules, atoms, human body cells and food components at dimension level. Nanotechnology is the science of manipulation and engineering of matter, particles and structures on the nanometer scale (one millionth of a millimeter, the scale of atoms and molecules). Field of nanotechnology is very wide and today this emerging science has established a number of milestones in the field of environment, energy, defence, agriculture, food, chemical as well as pharmacy. With the help of nanotechnology scientists can modify the structure of nanoparticles and can see the dimensions of nanoparticles bigger than their sizes. This control at the nanoscale is divided by nanotechnology with another kind of technology.

Keywords- nanotechnology , society, Impact, environment, energy, defence, agriculture, food its.

Introduction

Nanotechnology gives us safety, strong products at an extremely small size 1 nm to 100nm. Nanotechnology gives small devices and small systems at the nano level. The technology in which we can describe the design, characterization, manufacturing, structure of molecules, devices, and systems controlled by shape and size at the nanoscale level is called nanotechnology. Nanomaterials are different than other materials for two purposes. Nanoparticles keep the large surface area per unit mass which is the demanding factor of mechanical modulus and other sensible and chemical properties. Other materials change their properties at the nanoscale but nanoparticles are completely different from these products. The products that are made by nanotechnology need less energy consumption and less material waste. With the help of nanotechnology, scientists can save the environment. In agricultural fields, many small developed things are used and these work fast and excellently. Nanoparticles maintain a giant surface area more than other materials. That's why nanoparticles are known for the human body and the inter system. But some scientists are worried about carbon nanotubes because they are harmful to human inhalation system. These particles also cause lungs infections and also damage brain's nerves. These

particles are also harmful for animals and birds. Various forms of nanotechnology create a strong effect on society. Nanotechnology, some terms are used. These terms are following:-

Nanoscience and Nanomaterials

The study of phenomena and management of nanoparticles at molecular and macromore levels where these are the same in shapes and have a big difference in characteristics is called nanoscience. The materials have more one external and internal dimensions. These materials could show different unique characteristics as compared to the same materials at the nanoscale.

Nanoscale

This is the scale that has one or more dimensions of the order 100 nm or less.

Nanoparticles

Particles that have more than one dimension at the nano level are called nanoparticles.

Positive effects of nanotechnology

Nanotechnology is used in cosmetic and food industry, electronics, water purification, etc. This technology has a significant impact on our society. The positive effects of nanotechnology are useful in most of the cases. However, in some cases, this technology has some negative points also. But research shows that the benefits of this technology are more than it's damages. That's why we can use nanotechnology in our daily life because it is important. Life can be made better with the proper use of nanotechnology.

Health- Nanotechnology impacts our health and our life as well. This technology has a significant impact on the medical field. Nanotechnology uses nanoparticles which are small and the best choice for medical usage as they can deliver key medication. Nanoparticles can move easily from one place to another in the body. With incredibly small sizes, they could enter in brain nerves and other small nerves of the body. With a small size, they are able for providing medication to all parts of the body.

Nanoparticles are useful in medicines because they absorb easily in the body and deliver quickly. These particles are also used to deliver chemotherapy medicine to special cells like cancer cells. Nanotechnology is also proved to be useful for cancer treatment.

Improved vehicles fuel ability

Nanoparticles have improved the fuel ability in vehicles. After this technology, the parts of vehicles are made of nanomaterials which are better than metals. These are stronger, lighter than metal parts. Nano filters remove all the polluted particles in the air before reaching the combustion chamber. In this way, nanomaterials are useful in this field.

Purifying water

In emerging countries, nanomaterials are useful for improving the quality of purifying water. 15 to 20 nanoparticles can easily detect nano-sized viruses like bacteria, and they can remove them, this manageable process is significant for improving water quality.

Solar energy

Solar plates are made of nanomaterials. These particles take on sun rays including UV rays. Nanoparticles reduce UV exposure for a long time while packing.

Making plastic bottles

Nanoparticles are used in plastic drinking bottles. These bottles are of different nanomaterials. The resistance of these bottles is better than the other bottles.

Pollution

This technology also plays a good role to reduce pollution. Many nanoparticles play a role to clean the oil and reduce pollution. Nanoparticles react with polluted particles destroyed them and make the oil clean.

Environment- This also reduces the footprint of humans in the environment. With the help of nanotechnology, many industries made their process clean. This technology also decreases the need for more industrial plants. With the help of nanotechnology, scientists can remove greenhouse gases from the atmosphere. Due to this technology industries made their things quickly and reduced their waste.

Digital devices

With the help of nanotechnology, engineers can make short, small computers and other devices. They all consume a long time of batteries. Circuits are made of carbon and nanotubes maintained the growth of computer power. This technology provides faster and premium quality lab instruments. With the help of these instruments, there are fewer chances than others.

Nano sensor

With the help of nanotechnology, many nano sensors are made to detect substances at the molecular level. These sensors are very useful in industrial areas, labs, and airports. These sensors can be used to detect the particular cell in the body.

Nano-Fabrics

Nano fabrics can enhance stain resistance, water resistance and flame resistance without any enhancement in weight and stiffness. Carbon tubes have many commercial uses like when making sports things because nanomaterials are lighter and stronger than others. For example, a tennis racket is made of carbon nanotubes. This racket will be lighter and browner than others and these rackets bounce twice the tennis ball than others.

Negative impacts of Nanotechnology

Digital devices- After the invention of these things, people spend most of their time on their screens. This screen causes many issues like eye issues, psychological and other body issues. Most people use phones from 7 to 8 hours a day. That's why they lose their eye focus and face vision issues. When people face vision issues they follow the 20-20-20 rule and take good food. According to this rule, one should see at least 20 feet away for 20 seconds after every 20 minutes of using a screen. Some foods are the best for the eyes. Spending longer time in front of screen also causes shoulder and neck related problems.

Psychological issues

Exercise is important for the body. When people use the screens most of the time, they do not do any exercise. That's why it causes psychological issues. Brain exercises are also essential.

War effects

After this technology a huge amount of work on nanoparticles is done for the military. Military's work is to save their citizens from other countries. Nanoparticles can be used to make nano-bombs. If those bombs are unused, they can cause several problems in any war in the future.

According to some statistics, people show more trust after nanotechnology uses in military. Nanotechnology makes the military stronger, but it is too dangerous. Agencies have nanosensors. With the help of these sensors, they can know the plane of their competitors. Nanotechnology makes the world safe but nano-bombs are very dangerous for humans all over the world.

Environment- Particles used in Nanotechnology are to be synthesized. For their synthesizing high energy is required.

Conclusion- To conclude, this technology is still in emerging stage. This technology helps us stay safe from many diseases. We have seen the uses of this technology in movies till now only, but after a short time we can see it in real life. With the help of nanotechnology, we can transfer huge amounts of energy from one place to another place. This technology will improve our vehicles' life and their qualities. The process of nanotechnology is too much costly. A lot of money is needed for experiments. The products made by nanotechnology are athletic and fostered. Nanotechnology is used in every industry. A lot of inventions are to be done in the future with the help of nanotechnology. Nanotechnology can provide us with bounteous energy and with its help, we can transform energy from one place to another place. Public deliberation about nanotechnology, both formal and informal, will be inevitably shaped by the quality of the information presented in formal processes and in the public sphere about nanotechnology, its potential, risks and implications. The future of Nanotechnology's is surely going to be bright and it is to become the most successful technology which will be useful in every field of life.

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