The Impact of Technology on the Environment

The industrialrevolution has brought about new technologies with immense power. This was the transition to new manufacturingprocesses in Europe and the United States, in the periodfrom about 1760 to 1840. This has been succeeded by continued industrialisation and furthertechnologicaladvancements in developed countries around the world, and **the impact of thistechnology on the environment has included the misuse and damage of ournaturalearth.**

These technologies have damagedour world in two main ways; pollution and the depletion of naturalresources.

**1. Air and water pollution**

Air pollution occurswhenharmful or excessive quantities of gasessuch as carbondioxide, carbonmonoxide, sulfurdioxide, nitric oxide and methane are introducedinto the earth’satmosphere. The main sources all relate to technologies whichemergedfollowing the industrialrevolutionsuch as the burning of fossil fuels, factories, power stations, mass agriculture and vehicles. The consequences of air pollution includenegativehealth impacts for humans and animals and global warming, whereby the increasedamount of greenhousegases in the air trap thermal energy in the Earth’satmosphere and cause the global temperature to rise.

Water pollution on the other hand is the contamination of water bodies such as lakes, rivers, oceans, and groundwater, usually due to humanactivities. Some of the mostcommon water pollutants are domesticwaste, industrial effluents and insecticides and pesticides. A specificexampleis the release of inadequatelytreatedwastewaterintonatural water bodies, which can lead to degradation of aquaticecosystems. Otherdetrimentaleffectsincludediseasessuch as typhoid and cholera, eutrophication and the destruction of ecosystemswhichnegatively affects the foodchain.

**2. Depletion of naturalresources**

Resource depletionisanothernegative impact of technology on the environment. It refers to the consumption of a resourcefasterthanit can bereplenished. Natural resourcesconsist of thosethat are in existence withouthumanshavingcreatedthem and they can beeitherrenewable or non-renewable. There are several types of resourcedepletion, with the mostseverebeingaquiferdepletion, deforestation, mining for fossil fuels and minerals, contamination of resources, soilerosion and overconsumption of resources. Thesemainlyoccur as a result of agriculture, mining, water usage and consumption of fossil fuels, all of which have been enabled by advancements in technology.

Due to the increasing global population, levels of naturalresourcedegradation are alsoincreasing. This has resulted in the estimation of the world’seco-footprint to beone and a half times the ability of the earth to sustainablyprovideeachindividualwithenoughresourcesthatmeettheirconsumptionlevels. Since the industrialrevolution, large-scalemineral and oil exploration has been increasing, causing more and more naturaloil and mineraldepletion. Combinedwithadvancements in technology, development and research, the exploitation of minerals has becomeeasier and humans are thereforediggingdeeper to access more which has led to manyresourcesenteringinto a production decline.

Moreover, the consequence of deforestation has never been more severe, with the World Bank reportingthat the net loss of global forestbetween 1990 and 2015 was 1.3 million km**2**. This isprimarily for agricultural reasons but alsologging for fuel and makingspace for residential areas, encouraged by increasing population pressure. Not onlydoesthisresult in a loss of treeswhich are important as theyremovecarbondioxidefrom the atmosphere, but thousands of plants and animals lose theirnatural habitats and have becomeextinct.

EnvironmentalTechnology

**Despite the negative impact of technology on environment, a recentrise in global concern for climate change has led to the development of new environmentaltechnologyaiming to help solve some of the biggestenvironmentalconcernsthatwe face as a society**through a shift towards a more sustainable, low-carboneconomy. Environmentaltechnologyisalsoknown as ‘green’ or ‘clean’ technology and refers to the development of new technologies whichaim to conserve, monitor or reduce the negative impact of technology on the environment and the consumption of resources.

The Paris agreement, signedin 2016, has obligedalmostevery country in the world to undertakeambitious efforts to combat climate change by keeping the rise in the global averagetemperature at lessthan 2°C abovepre-industriallevels.

This section will focus on the positive impact of technology on the environment as a result of the development of environmentaltechnologysuch as renewableenergy, ‘smart technology’, electricvehicles and carbondioxideremoval.

* **Renewableenergy**

Renewableenergy, alsoknown as ‘clean energy’, isenergythatiscollectedfromrenewableresourceswhich are naturallyreplenishedsuch as sunlight, wind, rain, tides, waves, and geothermalheat. Modern environmentaltechnology has enabled us to capture thisnaturallyoccurringenergy and convertitintoelectricity or usefulheatthroughdevicessuch as solar panels, wind and water turbines, whichreflects a highly positive impact of technology on the environment.

Havingovertakencoalin 2015 to becomeour second largestgenerator of electricity, renewable sources currentlyproduce more than 20% of the UK’selectricity, and EU targetsmeansthatthisislikely to increase to 30% by 2020. Whilemanyrenewableenergyprojects are large-scale, renewable technologies are alsosuited to remote areas and developing countries, whereenergyisoften crucial in humandevelopment.

The cost of renewableenergy technologies such as solar panels and wind turbines are falling and governmentinvestmentis on the rise. This has contributedtowards the amount of rooftopsolar installations in Australiagrowingfromapproximately 4,600 households to over 1.6 million between 2007 and 2017.

* **Smart technology**

Smart home technology uses devicessuch as linkingsensors and otherappliancesconnected to the Internet of Things (IoT) that can beremotelymonitored and programmed in order to be as energy efficient as possible and to respond to the needs of the users.

The Internet of Things (IoT) is a network of internet-connectedobjects able to collect and exchange data usingembeddedsensor technologies. This data allowsdevices in the network to autonomously ‘makedecisions’ based on real-time information. For example, intelligent lightingsystemsonlyilluminate areas thatrequireit and a smart thermostat keeps homes at certain temperaturesduring certain times of day, thereforereducingwastage.

This environmentaltechnology has been enabled by increasedconnectivity to the internet as a result of the increase in availability of WiFi, Bluetooth and smart sensors in buildings and cities. Experts are predictingthatcities of the future willbe places whereevery car, phone, air conditioner, light and more are interconnected, bringing about the concept of energy efficient ‘smart cities’.

The technology of the internet furtherdemonstrates a positive impact of technology on the environment due to the factthat social media can raiseawareness of global issue and worldwidevirtuallaboratories can becreated. Experts fromdifferentfields can remotelysharetheirresearch, experience and ideas in order to come up withimproved solutions. In addition, travelisreduced as meetings/communication betweenfriends and families can bedonevirtually, whichreduces pollution from transport emissions.