MOJZA

O level

Global Perspectives

Individual Report Samples

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Sample 1

Has the shift to renewable resources been expedited by the environmental impacts of non-renewable resources?

Introduction

Sustainable living is such a lifestyle in which choices are made to lessen individual and collective influence on the environment. This is done by taking constructive steps, such as curtailing the use of plastics. One aspect of sustainable living is also linked with the type of energy resources that we're using it. There are primarily two types. Non-renewable resources are exhausted quickly, take mega annums to develop, and are thus, limited in supply. Prominent examples are fossil fuels. Renewable resources, on the contrary, serve as an environment-friendly alternative as they're naturally replenished and seemingly unlimited. Significant examples are solar energy and hydroelectricity. In 2019, about 84% of the global energy usage was accounted for by non-renewable resources. (Rapier) This figure has remained consistent thenceforth. This implies that the world heavily relies on non-renewable resources, which is alarming. According to a recent study, oil reserves will be depleted by 2043 (Welsby et al). This same scenario exists for other non-renewable resources, making the transition inevitable. Apart from the fact that they're running out, their environmental impacts are expediting this transition. Their environmental impacts are posing such an issue that they require immediate global concern as they're worsening by the day. Therefore, I've chosen this topic to bring light to this issue.

Environmental Impacts of Non-Renewable Resources

Non-renewable resources are called the fuel of climate change. They're the source of approximately two-thirds of worldwide greenhouse gas emissions. (European Environment Agency) These high volumes of greenhouse gases accumulate heat, which causes the global temperature to rise in a phenomenon known as global warming. If non-renewable resources continue to be extracted and used at the same rate and the prediction that energy demands will

double by 2050 turns out to be true, it has been forecasted that the global temperature would rise above 1.5° C (Welsby et al). Such global warming would prove detrimental globally. Apart from Global warming, negligence in transportation of oil causes spills that seriously degrade marine and terrestrial ecosystems. Amazon is one such ecosystem that has suffered due to these oil spills. Mostly owing to tarnished pipelines and operational mismanagement of companies like Pluspetrol Norte, 474 oil spills have been recorded in the Peruvian Amazon from 2000 to 2019. (Zárate) The health scenario there is dire, as the local inhabitants have been found to have toxic metals like lead and arsenic at abnormal levels. (Zárate) Aside from oil spills, radioactive waste presents another challenge as it can't be disposed of easily and requires to be specially contained. Radioactive waste is dangerous due to the fact that it continues to generate radioactivity for even millennia. If this radioactivity is released in large amounts, it can be lethal and also cause deformities and sicknesses in the locals over several generations. One unfortunate incident that has occurred in the past is the Chernobyl Nuclear Accident in 1986. It contaminated the wide areas of Belarus, the Russian Federation, and Ukraine. Even after many years, the locals have been reported to have peculiar physical symptoms and short life expectations. (IAEA) Therefore, non-renewable resources have worrying environmental impacts that justify the transition to renewable resources.

Globally, this situation has been clearly recognized and many global organisations have taken steps to facilitate the transition and work up strategies to minimise the environmental impacts. One such organisation is the World Energy Council, which is providing insights, in the form of reliable data, useful tools, and impartial comment, to energy leaders for making effective policies and business decisions regarding the transition. They've identified in their World Energy Issues Monitor 2020 report that the global warming issue is considered crucial in all countries and have provided separate energy agendas for different zones. (World Energy Council) Most developed countries are particularly serious about the global warming issue, like the United States. Achieving net-zero emission of greenhouse gases before 2050 is considered to be pivotal for avoiding the worst impacts of climate change by most Democratic candidates. (Gross) The American government is cooperating with the energy companies to regulate oil and gas consumption to reduce greenhouse gas emissions and ratifying such policies that will spread awareness amongst Americans regarding the sensitivity of this issue. Thus, they surely agree with the need for the transition. Most developing countries have fortunately identified the global warming issue but incentive is lacking to counter it as an action priority, like Pakistan. Although a significant potential lies for developing renewable resources as a solution in Pakistan, various impediments, like absence of infrastructure and inadequate grid integration ability, challenge the transition. (Raheem et al). Thus, they recognize the need for the transition but require a determined will to initiate it nationally. Thus, it can be seen that the perspectives differ for developed and developing

countries mostly. Whilst developed countries have the capital and incentive to encourage the transition, developing countries generally lack either the capital or the incentive or both. Yet, most countries perceive this as a concerning issue.

Causes of Issue

Environmental impacts are worsening by the incessant or even increasing use of non-renewable resources. Non-renewable resources are the primary global energy source, as they're used to power vehicles, factories, homes, offices, schools, etc. People prefer non-renewable resources over their alternatives and use them more, thus intensifying their environmental impacts. These resources are abundant globally, as they've reservoirs throughout the world, like the Appalachian Mountains, rich in anthracite, and the LaBrea Tar Pits, rich in oil. (National Geographic Society) Thus, these resources have an easier supply leading to more usage, which eventually causes environmental impacts. Moreover, they're cheaper and easier to use than their alternatives. As renewable resources are comparatively new, setting up their systems requires more capital and is more challenging. Furthermore, they can be stored, piped, or shipped anywhere in the world. These factors cause non-renewable resources to be preferred and used more, resulting in increased environmental impacts. The most important cause is the ability of non-renewable resources to be stored, piped, and shipped anywhere, as it makes the use of non-renewable resources easier globally. Other causes like abundant reservoirs only makes their access easier in certain areas, but it's their ability to be transported easily that makes their access easier globally. For instance, the locals near the Appalachian Mountains would be deprived of oil if it weren't for trade.

Consequences of Issue Undoubtedly, these environmental impacts are disrupting the ecological balance and permanently changing weather patterns. Threats are being posed to human beings and all forms of life on Earth. The damages brought about by global warming are deleterious. Nearly all land areas are experiencing hotter days and more frequent heat waves. 2015 to 2019 were the five hottest years on record (United Nations). Occurrence of wildfires has also increased and heat-related illnesses are becoming common progressively. Furthermore, water scarcity is becoming problematic in more regions. Droughts are causing deficits in agricultural production and severe dust storms. Deserts are spreading, which is shrinking arable land, leading to food shortages and starvation surges. Up to 811 million people worldwide had to face hunger in 2020 due to the disturbance of food resources (United Nations). Likewise, changes in temperature have caused changes in rainfall. Severity and frequency of storms has escalated. Flooding and landslides have destroyed homes and entire communities. The destruction has been catastrophic and cost billions of pounds.

Over the past 50 years, climate change has triggered a surge in natural disasters which have

affected poorer countries unevenly. (Pavlinovic) The consequences triggered by other environmental impacts like oil spills and radioactive wastes are equally negative. Oil spills disrupt entire ecosystems by poisoning or drowning marine animals, contaminating water bodies, and disturbing the food supply of other animals and humans. Also, carelessness in dealing with radioactive wastes may cause deaths, diseases, and traumas. It may also make the surrounding land barren. The most important consequence is global warming, as it creates a vicious cycle. For instance, it causes rise in temperatures, leading to water scarcity, resulting in droughts and low crop yields, causing starvation and deaths. Also, this consequence can be observed anywhere globally, whereas oil spills can only take place in certain trade routes and radioactive disasters can only happen near nuclear power stations. Also, global warming is a greater threat in island areas as they're more likely to sink when ocean levels rise. Similarly, oil spills are more damaging near the shores as they affect both marine and terrestrial ecosystems directly in that way.

Course of Action

The environmental impacts of non-renewable resources can be countered by the transition which is only possible through technological advancements and a societal will to attain sustainability. Governments need to enact such policies that will encourage the transition on a larger scale. Awareness campaigns need to be launched by the governments focusing on the general public. In rural areas, these awareness campaigns can highlight and encourage the use of biomass, whereas in urban settlements, the use of solar panels. Students also need to be enlightened with renewable energy technologies to develop their interest in this field. This needs to be done cooperatively by the governments and the educational institutions by making amendments to syllabuses.
Governments of countries where law and order situation is dire, need to address it to attract foreign investors for investments in renewable resources. Governmental and private institutions for energy development need to conduct feasibility studies for renewable technologies. By following this strategy, the transition can be facilitated, which will reduce the use of non-renewable resources and thus, restrict their environmental impacts.

Evaluation of Sources

A great many hours were put into the research. I worked hard to use undisputed and reliable sources to preserve the authenticity of the facts mentioned. So, I avoided unreliable websites, like Wikipedia, which is editable. This guaranteed that my research findings were authentic.
Moreover, I utilised a wide range of sources, including articles, reports, and webpages of reputable journals and organisations such as the United Nations, Nature, European Environment

Agency, Brookings, etc. This helped me to cross-check my research findings. Furthermore, I tried to quote research from more recent years, such as Dan Welsby's article which was written this year. Despite my efforts, I was compelled to use Abdul Raheem's article, which may be a somewhat outdated article, as it was written in 2016. Still, the information taken from that article was rechecked with other sources. This ensured that I was using up-to-date data, which was especially important in statistics. Likewise, in the case of articles, I took special care in using articles of renowned authors, such as Dan Welsby, who graduated from UCL in 2015 with an MSc in Economics and Policy of Energy and the Environment. His mastery of this degree gives his words even more credibility.

Personal Reflection

Before researching about this topic, I was personally quite aware of the need to adopt renewable resources in the stead of non-renewable ones due to their various complications. Yet, I didn't know that the contribution of non-renewable resources to the global energy usage was so high comparatively. Likewise, I learned many new things through this experience, such as the surprising fact that oil reserves will be depleted by 2043. Whilst researching, I discovered the perspectives of different global organisations and countries. Reading the World Energy Issues Monitor 2020 report broadened my perspective and allowed me to think in compliance to other countries' needs and capacities. I previously believed that the transition to renewable resources still has some time but after my research, I now think that the time for the transition is here. I've become cautious of wasting precious resources. I also learned to use the existing non-renewable resources wisely by not wasting precious electricity. The limited nature of non-renewable resources imply that the transition is inevitable but their environmental implications have surely hastened it by alerting all the nations around the world, who're now taking action to adopt renewable resources. Thus, the shift to renewable resources has definitely been expedited.

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Sample 2

Is Information Technology Disintegrating Communities?

Introduction

Communities have been evolving and changing since the beginning of human presence on this planet. In the process of human evolution and formation of human communities, the nature of relationships among humans has been changing due to various factors. In the current age of information technology, human communities are changing rapidly. In fact, information technology has played the role of a catalyst in the process of this change. While most social scientists agree that change is constant, there is a debate on the nature of this change. Some believe that the change brought by information technology is disintegrating communities. Others argue that the change is resulting in the integration of communities. In this research arguments of both sides will be presented, assessed and analysed.

Arguments In Favour of Information Technology Casing Disintegration of Communities

Causes and Consequences

Those who argue that information technology is causing disintegration in communities, present various arguments. Their first argument is that communities are disintegrating because people spend more time interacting with social media apps rather than spending time with their community members. This can be proven by the fact that the average social media usage of internet users around the globe is over 2 hours per day (Statista Research Department, n.d.). Furthermore, community members become addicted to validation by other people on social media and spend a long time looking for comments on their online activities and repeatedly check their social media accounts (Andreassen et al., 2016).

The result of this addiction explained above is that the valuable interaction of people with their community members is reduced. For example, a study was conducted in Pakistan regarding how the increase in the use of social media affects family life and 94% of social media users believe that excessive use of social media affects family life negatively (Ali, 2016). This shows how communities are disintegrating due to less interaction.

A big part of information technology is online gaming which is also blamed for contributing to the disintegration of communities. A study proves that video games make the younger generation not only addicted but also makes them reduce their interaction with their community members. Also, excessive online gaming makes the younger generation believe that other community members do not need their contribution. The most alarming fact that the research points out is that online video gaming results in children neglecting other recreational activities that involve physical interaction with community members (Andreassen et al., 2016).

The consequence of spending time with online gaming is that it gradually leads to disintegration among the community members. The interaction of the online gamers with their family members is reduced and they don't take part in activities of the society. For example, A study was conducted amongst 458 Saudi parents of children ageing from 6 to 12 years regarding the impact of technology on children's outdoor activity. The study concluded that since children were so interested in the use of technology, their outdoor activity was decreased (Alotaibi et al., 2020). This meant that children came less in contact with the communities and gradually started to disintegrate with them.

Another argument that is presented by those who say information technology disintegrates communities is that it encourages people to grow differently. A person who has sufficient exposure to information technology has a greater opportunity to keep growing according to his/her taste. Information technology has allowed people to research the information of their interest and grow their interest towards it (Toffler & Alvin, 1980).

As a result of growing differently, community members start to move away from their physical/traditional communities. For example, while two siblings might live under the same roof for a long time, information technology encourages them to grow entirely different from each other (Toffler & Alvin, 1980). One person may grow his interest in gardening while the other one may grow his interest in painting. Both the persons might interact with their reference group more frequently than they interact with their siblings in the same house. Because of this factor, the community overall may experience disintegration within its members.

Comparison of Causes and Consequences

From the above three arguments presented in favour of information technology causing disintegration among community members, the strongest is the one that analyzes the effects of social media apps because its consequence is the most detrimental. The younger generation becomes a victim of social media apps at an early age. Once they become addicted to it, they start to move away from the community members in general and the older generation in specific. The long-term effects on society may be very harmful.

Arguments Against Information Technology Casing Disintegration of Communities Causes and Consequences

On the flip side of the issue, some argue that information technology is playing an important role in the integration of society. Information technology has enabled people to cheaply communicate with each other. Many free applications such as WhatsApp, Instagram and Discord enable community members to communicate with each other free of cost. Previously, communication with those who were not in close proximity was a huge issue as it was not only expensive but was also time taking. Information technology changed this and allowed easier, cheaper and faster communication.

As a result, there are more opportunities for people to connect. Hence, communities feel more integrated with each other. For example, it is generally observed that many community members can connect with their family and friends abroad through applications such as WhatsApp and Zoom which was previously close to impossible. A report from the UN holds the viewpoint that “families use digital technologies for communication and connectivity” (Walker, 2021). This has allowed the community to integrate without needing physical interaction.

The second argument by those who favour the claim that information technology is causing integration in communities is that information technology has allowed people of similar interests to connect. There are several interest-based groups such as LinkedIn groups of professionals and many other webpages that enable the professionals and interest-based communities to interact with each other more frequently and meaningfully. For example, PakWheels forums have allowed thousands of members of the car community of Pakistan to communicate with each other and arrange meet-ups (PakWheels, n.d.).

As a result of the interaction of like-minded people, interest-based communities start to integrate. Many people who can’t interact with their physical communities can join these interest-based communities through information technology. According to a study conducted amongst young people in Turkey, many people who found it difficult to make friends in real life had plenty on

social media. Similarly, a person who couldn't effectively maintain communication with his family may be able to form good communication with a random person with a similar interest online (KIRIK et al., 2015). This signifies how people can effectively integrate themselves into interest-based communities.

Another argument which those who favour the statement that information technology integrates communities is that video games allow community members to connect with each other. Many multiplayer games allow people around the globe to communicate with each other through in game voice chat and/or in-game chatbox. For example, Roblox, a famous multiplayer video game connected 3.1 million players globally every day in the year 2020 (Wiederhold, 2021).

The result of interaction through online gaming is that the users can form communities online in games. According to a study, most of the students ranging from the age of 13-18 prefer to communicate with their friends through video games rather than video calling each other or contacting each other through social media (BBC, n.d.). All the players have a common environment in which they enjoy. Not only do they enjoy but also form communities where they find themselves well integrated (Wiederhold, 2021).

Comparison of Causes and Consequences

From the above three arguments presented in favour of information technology resulting in integration among community members, the strongest is the one that analyses how information technology has made communication easier, cheaper and faster. The two other factors regarding video games and the formation of online interest-based communities do not have a significant impact on the older age group. However, the factor of making communication easier, cheaper, and faster impacts every age group.

Course of Action

After a careful analysis of the two sides, favouring and opposing the role of information technology causing disintegration in communities, there are certain suggestions for a course of action. Firstly, it needs to be understood that information technology has its pros and cons. A sudden shift towards digital communities through information technology can be harmful for society. The amount of usage of information technology that significantly reduces the physical interaction of community members should be controlled. As long as the usage of social media and online gaming is for entertainment only, it should be accepted but its addiction should be discouraged by limiting the screen time. Furthermore, advantages should be taken from the pros of information technology so that we remain connected with our family and friends especially

when physical interaction is limited due to COVID-19. In this way, there will be less disintegration of the community and the integration of online communities will also not stop.

Conclusion

It can be concluded, after reviewing the arguments of the two sides, that both arguments are based on social research and convincing evidence. There is an obvious observation that around the globe the younger generation is disintegrating from the older generation because of its different exposure to the world of information, communication, and entertainment. At the same time, it is also true that information technology has facilitated the formation of new forms of communities. As we can observe the formation of new communities and interest groups around the globe as information technology has eliminated the geographical boundaries. Both the processes of integration and disintegration are bound to take place but sudden disintegration in communities can have negative impacts. By using information technology in a controlled amount, the disintegration of the communities and a sudden shift towards digital communities can be curbed.

Evaluation of Sources

Tremendous effort has been made to include in this report only those sources that are reliable and trustworthy. The issue that I have analysed here is ongoing and the consequences of information technology for communities, as a force of integration and disintegration, are constantly being analysed. Generally, I have attempted to review mostly new sources. Alvin Toffler (1980), a renowned social scientist and futurologist, however, is an exception. Reference to his work was relevant because it had warned early on about the social implications of information technology. For very recent statistics regarding the usage of social media, I have reviewed the websites known worldwide for giving reliable statistics such as www.statistia.com to make sure the statistics provided in this report are reliable. For more reliable reports, I also sought help from global media giants such as the BBC. In addition to this, some of my sources come from very authentic journals such as Global Media and International Journal of Sport Culture and Science which makes the information provided in my report reliable and trustworthy. Furthermore, I did not take any information from web pages such as Wikipedia which could be unreliable as any person can edit them.

Reflection

This research has taught me many skills of which I was previously unaware such as doing citation and referencing by using Zotero. Furthermore, I have learnt a lot regarding how information technology is changing the community by both integrating and disintegrating it. As I would usually see that people are more interested in using social media apps even when they are sitting in gatherings of friends or family, previously, my view was that information technology is mostly disintegrating communities. But after doing this research, my personal perspective has changed. Now, in my opinion, information technology is also playing an important role in the formation and integration of communities. By taking advantage of the pros of information technology and avoiding its excessive use, we can be active members of both physical and online communities.

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Sample 3

How Technology Helps Improve the Quality of Living for Unprivileged People?

Introduction

In Today's modern world, miracles can be accomplished with the assistance of technology. Who would have 30 years ago thought how Technology would influence our way of life, till a point where it has become a necessity. At the same time this advancement can also be used to help people less fortunate than us. As a computer science student, this is an interesting prospect and something that has entered my mind quite often. People with mental and physical disabilities can be prime applicants of this. Another position that can be surveyed is impoverished people or those who are living in isolated areas.

Causes and Consequences

The use of various gadgets and gizmos in medicine isn't something new. Nevertheless, recent innovations have opened more opportunities. Autism is a brain disorder that affects 1 in 54 children [1]. They have difficulty in communicating and making their needs understood to the people around them. An example of this is Carly Fleischmann. Carly is severely autistic and because of her inability to speak, people thought that she was simply too handicapped. However, when she was given a laptop to type on, she was able to communicate with people and relay her feelings and thoughts [2] [3]. This allowed her to tell people what it felt like to be autistic. This gave us an inside view and understanding of autism in detail. She now runs a YouTube channel which has gained quite some traction [4]. This is not the only instance, Alex Vaillancourt's iPhone allowed him to become more independent, because autistic patients prefer repetitive behaviours [5][6], and a smartphone can help in that via a habit tracking and schedule app. It can also help develop a sense of responsibility [7]. Text-to-Speech or point-to-speak apps have allowed communication even between those who cannot speak and make simple tasks like ordering food easier.[8] Numerous Studies have shown that video games can be used constructively to develop better communication skills [9][10] and Projects such as ECHOES are [11] an example of this. This is not only limited to Autism, but Video games have also been shown to slow down the effects of Alzheimer's

and help patients with PTSD among other disorders.[12][13] Not only that but Technology has also made taking care of the sick easier with technologies such as NFC making it easier to manage patients and smart watches allowing for minute-by-minute vitals monitoring. [14][15]. The application of such technology is not restricted to only those with cognitive disabilities. 3D printing to make

cheap, lightweight, and custom fitted prosthetic limbs is an exciting possibility [16][17]. Every year in the United States alone some 158,000 people get a limb amputated for various medical reasons or due to an accident. [18] Such people could be equipped with robotic prosthetic limbs that could be voice controlled or via a brain-computer interface (BCI) [19]. BCI allows for signals from the brain to be interpreted into a form recognized by a computer to establish a link between the two [20]. This Technology could be used and is being used on an experimental basis to allow amputated people to control Robotic limbs by just thinking of the movement [21][22]. An example of this is Les Baugh, who as a teenager lost his arms , using BCI he could control a set of robotic arms[23]. Recent Advancements have enabled us to make "Bio realistic" prosthetics with the look, movement and reflexes which resemble an actual hand. [24][25][26] that are based on human anatomy. Deep learning using AI can help make these movements smoother and precise [27][28]. Precision is required while using fingers and even if the brain was somehow to miscalculate the place where an object was located, AI based manipulation could correct that [29]. AI is also being used in smartphones as a substitute for hearing aids. Approximately 5% of the world's population suffers from hearing loss. Recently Apple, one of the largest consumer electronics makers released iOS 15 for their iPhones that when paired with their Airpods Pro have a feature called "conversation boost". Using AI, they can amplify conversations while downplaying other background noise.[30][31] The application for technology to help disabled patients and in medicine as a whole are quite broad and the limits are endless.

Technology can also be used to help improve the quality of life for poor or those living in remote areas. With a poor infrastructure and lack of resources plaguing most developing countries. Education is a luxury that is not available to most in areas like Africa. Technology can help with that with remote learning via video meet sessions making it accessible in even the remotest of villages. Devices like the Mobistation, which is described as a 'school in a box' are helping create a portal to the vast sea of information for children in such areas.[32] Powered by Solar electricity, thus overcoming need for a power source, it has a laptop and a multimedia projector built in to showcase educational content. Its portability and versatility allow it to be deployed practically anywhere. Trying to get over the 'shiny new device required' stereotype is also a must. Many countries have been using existing resources to help spread education. Ustad Mobile is an app made by Paiwastoon. Realising a need to make such resources readily available to the public.

They aimed their app towards the 'dumb' feature phones which are found in the hand of the common

Afghan and are cheap to buy.[33] The Pakistani government used existing and common media to help with eLearning when the Covid-19 pandemic hit. Understanding that most households don't have internet access [34], the government turned to using television and radio broadcasts to help educate students from the first grade up till the twelfth.[35] However just sending Technology to such places, without infrastructure is not enough, people need to be taught how to effectively use these machines. Efforts made nearly a decade ago suffered from the same issue. [36] Technology is helping people become more self-aware and helps them stand up to controversial actions that might once be considered social norms. It is also being used to help refugees; a well-documented case is of Ángeles De Andrés who from her home in the Spanish city of Vigo helps coordinate efforts to safely move refugees and accommodate them. Her organisation and the 3000 or so volunteers have assisted thousands of refugees, mostly trying to escape from conflict, by collaborating via WhatsApp and using a smartphone's built-in GPS to allow for location sharing to help assist them. [37][38]

Many people in rural Africa live miles away from any proper health facilities and there are roughly 3.42 physicians per 10 000 people on average in the continent. [39][40] People in such places can benefit from telemedicine. Being able to access professional medical facilities while being hundreds or even thousands of miles away can be a game changer and help prevent thousands of deaths. This will greatly help bridge the gap in Africa's lagging health infrastructure. [41]. Projects like these have been underway in Africa ever since the early 2000's. [42][43] Solutions like MDaaS are trying to make healthcare more affordable and accessible to people in Africa. Even in other poor and developing countries in regions like South-east Asia this technology could be beneficial. [44] Diagnosis through AI and smartphones is an interesting possibility. Ubenwa is an AI based framework that can detect asphyxia, which is a major cause of deaths in infants, simply by listening to a recording of a child's cry. This has helped reduce the cost and time required for a normal diagnostic while making it accessible.[45][46] However access to medicines is still a problem. Their transportation through rough areas with often sparse or no infrastructure is difficult. Companies like Zipline are using drones to transport medicines rapidly and efficiently,[47] Nigeria recently partnered with them to help deliver Covid-19 vaccinations around the country despite the extreme cold required that make it a logistic challenge.[48] Previously they had also been delivering rabies, hepatitis, and tuberculosis's vaccination to countries like Vanuatu. [49] Projects are also helping verify medicines delivered as well as helping existing hospitals in institutional management.[50][51]

However these all require access to a smartphone with internet access, which are not only expensive but also require technical know-how. An emerging solution is KaiOS which is a mobile

operating system that can run on low-end feature phones while offering smartphone-like functionality in an affordable package, [52] that can work on unstable connections with cheap data plans. In Pakistan Jazz, the largest mobile network provider [53] recently launched the Jazz Digit 4G, which at average cost nearly $26 while a low-end smartphone can cost more than $100. [54] Projects like BRCK's Moja which tries to make internet services more accessible for the average African [55], will help usher developing communities into the digital age.

Course of Action

The application of aforementioned technology is extensive, and it greatly increases convenience and facilitates the common person. A viable course of action would be to identify life-threatening problems and develop technology to help mitigate those problems. Technology should be made accessible to all, especially to those areas where it is direly needed. Devices such as projectors and laptops should be provided to all schools in underdeveloped regions of the world, to help bolster education and help foster Computer literacy which is an essential skill in today's digital world. The Medical application of technology could help save many lives and such efforts should be encouraged by International governments Science Organizations via research grants that could help open up new doorways.

Analysis of Sources

I put a lot of effort into researching sources for this report and have used data from reputable research articles that could be cross checked. I attempted to use the latest research, however due to the scope of the research, collecting and curating the results can take many years. The data obtained from the Center for Disease Control and Prevention, USA was reviewed in September of 2020, yet the range of the data is from 2000 to 2016. The same goes for some reports that were used. For most of these I only included sources that were published in well-known journals. When a website was used, I made sure that the website was reputable and trusted. I tried staying away from non-verified community sources as the information is not always accurate. For personal recounts I mostly relied on the information from reputable newspapers and magazines like The New York Times, Reader Digest and NGOs like Autism Speaks. Rather than using multiple sources from the same institution or same authors, I tried adding different perspectives to add variety and did not include sources that appeared fabricated. There is a scarcity of literature relating to the effect of technology on poverty elimination and due to this, I could not write extensively on the topic.

Conclusion

Technology has helped play an essential role in improving the life of the unprivileged and the future holds many interesting prospects. The process of bringing equality in the world in terms of development, health, and education can be greatly accelerated via technology. Technology's role in helping disabled people reach a level of independence and make them feel more like a part of this community is admirable. As technology advances and becomes more accessible, I am sure that humans will be able to solve most if not all problems.

Personal Reflection

This report was eye opening for me. It showed me a glimpse of the future and how it could affect us. Before writing this report, I believed that next to nothing was being done in remote areas like Africa, however while researching I found so many interesting initiatives that were in progress. A cultural stereotype in Pakistan is that those born disabled, will remain like that for the rest of their lives. New technology should offer hope to such people and help them break the shackles of dependency.

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Sample 4

How are humans becoming the cause of biodiversity and ecosystem loss?

Introduction

A set of living organisms that reside in and communicate with each other in a certain environment is the most fundamental definition of an ecosystem. Tropical forests, for instance, are environments made up of living beings such as trees, plants, animals, insects, and microorganisms and are impacted by physical (sun, temperature) or chemical (oxygen or nutrition) factors. Whereas, the term biodiversity refers to the variability of living beings found all over the world or in a certain habitat (Tilman, 2006). But until recently loss of ecosystem and biodiversity has reached alarming rates due to many reasons such as habitat destruction, overexploitation of the environment, introduction of non-native or invasive species for example, the introduction of European green crabs into San Francisco Bay, which displaced native crabs. Furthermore, factors such as pollution and global warming play an important part in contributing to environmental degradation. (Wood, 2000).

Issues

Destruction of Habitats

The planet's environment is in jeopardy, and the worst offender is, ironically, the species that most relies on it: humans. Ecosystems are being ravaged by human actions. Human activities transformed ecosystems more rapidly than ever before around the turn of the twentieth century, according to the famous Millennium Ecosystems Assessment. (Chapin III, 2000). Although increased human actions on the environment, such as clearing enormous tracts of forest for urbanisation, industrialization, and agriculture, improve the long-term viability of an ecosystem, biodiversity loss has been accelerated. With a growing population, deforestation is carried out rapidly for their accommodation. In order to cater to the needs of the people, large land is consumed for agricultural and mining activities to ensure adequate supply of resources for

present and future generations. Rapid industrialization and worldwide competition have provoked nations to utilise their premises to manufacture new and advanced products for trade and export in order to improve their economies. Furthermore, locals and tourists visiting natural attractions tend to harm their surroundings and the ecosystem by littering, crowding and spreading noise and air pollution. As a result of these activities, marine, terrestrial, forest and desert species immensely suffer. As dangerous gases and chemicals such as carbon dioxide, carbon monoxide, nitrogen dioxide, and sulphur oxides are released into the atmosphere, causing acid rains, the rise of businesses also entails the growth of air pollution. This causes quite apparent changes in the pH level of water bodies and soil which leads to intoxication and loss of species. Along with this, increased noise pollution disrupts organisms that migrate to new locations and often die as a result of their anguish and incapacity to adjust to their new surroundings. Moreover, the debris from industries and agricultural activities that is dumped into rivers and streams leads to eutrophication due to which the amount of oxygen in the water decreases, sunlight does not reach the depths due to which underwater marine organisms and plants are unable to receive nutrition and kills many aquatic species (Pongsiri, 2009). These toxins that penetrate small fish bodies come into the food chain, where they are swallowed by larger fish and even people, putting all lives at danger. The most important cause of this issue is probably the growing population, as it is the most far-reaching. Some causes, like rapid industrialization, are much more important in developed nations only where it is possible. But this cause can be observed almost everywhere, as the population is growing globally, demanding accommodation and resources, owing to deforestation. The most important consequence of this issue is the extinction of numerous species and the endangering of many more, as it is the most direct.

Indiscriminate Hunting and Exploitation of Biodiversity

The act of capturing wild animals or wildlife for the purpose of food or sport is known as hunting. Humans are responsible for disrupting the ecosystem's balance by illegally hunting and shooting birds and animals for the sake of pleasure and consuming their meat. (Tilker, 2009). Habitat deterioration and poaching have resulted in the extinction of larger vertebrate species in tropical biodiversity hotspots. Both defaunation causes result in faunal assemblages that are poor and homogeneous, which has a wide range of ecological, evolutionary, and socioeconomic effects. Defaunation results in population losses and extinction of species, changes community and ecological processes, distorts evolutionary pathways, and jeopardise the livelihoods of forest dependent peoples. According to mounting data in the scientific works, few worldwide concerns that have surfaced from the Anthropocene have various and presumably lasting implications. Less drastic habitat change has a more complicated effect on faunal populations, as different logging

regimes cause different degrees of degradation. While habitat loss has a broad adverse impact on tropical animal and bird communities, some studies have demonstrated that species-specific responses can range dramatically. As habitat degradation progresses, for example, the number of forest specialists may decline, resulting in a decrease in total species richness. (Datta, 2019). Some of the animals and birds have a high commercial value, such as the Houbara Bustard, a rare bird located in Southern Punjab that is in risk of extinction due to popular hunting by locals and foreign tourists, particularly Arabs. Hunting is also reducing the population of cheetahs and leopards. The most important cause of this issue is the high demand for resources obtained from animals and plants, as it is much more prevalent than others. Some causes, like hunting for entertainment, are gradually, but surely becoming much less significant due to global authorities taking action. But so far, no such decisive action has been taken to cease this highlighted cause. The most important consequence of this issue is the decrease in natural biodiversity due to the extinction and endangerment of innumerable species.

Course of Action

Ecosystem and biodiversity disturbances have triggered problems that require quick response. On a worldwide basis, countries should undertake green living plans and initiatives, such as the development of large-scale waste disposal units to dispose of industrial and agricultural waste in an environmentally acceptable manner. Countries should also implement trash recycling reforms. Japan, for example, has created advanced industries that process and discharge dangerous gases into the atmosphere. On a national level, governments should initiate tree planting campaigns to counter deforestation. Personally, citizens should practise the 3R principle (reduce, reuse and recycle) to efficiently make use of their waste products. This, as a result, will encourage and help organisms all around the globe to thrive in their natural habitats and will ensure their security. In order to counter overhunting and exploitation, there is a need to enforce The Law more strictly by punishing the violators with heavy fines besides jail sentence. In addition, there are requirements for the governments to create awareness more vigorously among their public.

Conclusion

To sum up, it is critical that we focus on our environment and adhere to the notion that, while natural disasters have a detrimental influence on ecosystems, we are the ones who deliver the death

blows. It's past time for us to take responsibility for our faults. Much can be saved if we make a commitment to act responsibly for environmental conservation even now. We must cease

damaging habitats, hunting animals ruthlessly, and harming flora now if we do not want future generations to suffer.

Evaluation of Sources

During my investigation for this subject, I came across a variety of websites and publications. The paper on biodiversity and ecosystem degradation by David Tilman was well-written and contained credible references and information. It featured a strong framework that was supported by strong details. Montira Pongsiri's perspective on biodiversity loss as a result of human activities was similarly based on facts and statistics, as well as pertinent citations and references. Pictorials, graphs, pie charts, and data were added to aid in the reader's comprehension of the content. Aparajita Datta's hunting documentary, which featured incontrovertible proof and facts, was also crucial to this study. Johanna Mang's work, on the other hand, contained untrustworthy data, confusing references, and limited data.. It was short and sloppy in structure, with questionable citations. Andrew Tilker's take on biodiversity also had a few vague references and opinions. Overall, the sources used to compile this report provide the reader with accurate information and have a strong composition.

Reflection

Taking into account my individual experience, I faced various obstacles while writing this article. I found it challenging to collect data and information at first because it required a lot of reading, research, and review. Compiling my material into this report was invigorating and engaging for me once I had gathered articles and reliable sources. I am well-aware that humans are devastating the natural environment. I believe that we all should, in a way, be held responsible for the environmental degradation. Environmental damage can be mitigated by raising awareness and being steadfastly loyal to our surroundings through recycling and green living. Individually, we must keep a close eye on our surroundings and take prompt action to protect our world and its biodiversity. These organisms are our only hope of surviving. The human race would be miserable without them. As a result, every human being's primary goal should be to safeguard these animals and their habitat.

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Sample 5

How is biodiversity being negatively affected by human activities?

Introduction

Biodiversity (also called biological diversity), is a variety of life living on earth. This report will highlight the issues and the causes and consequences of human activities which are affecting species all over the world. The rate of loss or extinction of species is accelerating day by day due to human activities such as deforestation and pollution. The decline of biodiversity indicates the loss of genetic variability, and variety of species and their biological communities all over the world. Pakistan is negatively affected by biodiversity loss and this has negatively affected our country as species such as the snow leopard are slowly becoming extinct. This is one of the main reasons I have chosen this topic. Another reason why I have chosen this topic is due to the vast variety of literature available.

Issue 1

Climate change refers to the difference in the average weather (Werndl, 2016). Climate change has led to extinction of many species and is a threat to survival of many of the remaining ones. Human activities have negatively affected climate in many ways. Before 1760 (the starting period of industrial revolution) the cause of climate change was natural but after the industrial revolution human activities are the main cause of climate change. Greenhouse gases are affecting the ozone layer of the Earth, which helps block harmful UV rays that cause global warming (United Nation, n.d). Humans generate power by burning fossil fuels such as coal,oil and natural gases which releases gases like carbon dioxide and methane (very powerful greenhouse gas) and nitrous oxide. These gases in the surrounding area affect the ozone layer and cause global warming which increases habitat or biodiversity loss. Beside production of power there are many other human activities which cause gas emissions such as transportation which is a major greenhouse gas contributor like carbon-dioxide (United Nation, n.d). The increase in human population is causing an increase in the number of vehicles running on roads who are producing

huge amounts of greenhouse gases; ships and aeroplanes are also contributing to emission of greenhouse gases. Another human activity which is affecting climate change is oil drilling. The process produces 30 % methane and 8% carbon dioxide both of which contribute to the greenhouse effect. Oil drilling is mostly done near coastal areas which threatens marine life as oil drilling produces many harmful gases, acids and chemicals (United Nation, n.d). Moreover, increase in livestock farming is also a reason for the increase in production of greenhouse gases as cows and sheeps produce methane in a large amount after digesting their food. The transport of livestock from farms to the butcher also outputs greenhouse gases during transport (European Union, n.d). All the aforementioned negatively affect biodiversity due to the climate change taking place. Due to climate change natural disasters occur more frequently as in 2021, we have seen many disasters taking place all over the world such as Oregon forest fires and Canadian heat waves. High intensity rainfall moved to Henan, China caused flooding and destruction of habitat (Green Info, July 27, 2021). Natural disasters have been occurring throughout the time but have been increased due to humans. The natural calamities caused by climate change are showing how the Earth is going to end up in the future. According to NASA 2020 was the hottest year ever recorded in history which is increasing day by day. The global land and ocean temperature has increased by 1,2 Celsius which is really bad as an increase in 1 degree Celsius can cause high rates of floods and high intensive rainfalls all over the world (Green Info, July 27, 2021). The melting of ice glaciers in Greenland and Antarctica are the indicators of rise in sea level in the future. Climate change by the year 2100 can cause the sea levels to rise by 6,7 metres similar to those thousands of years ago. In comparison with the past rate of ice-glaciers melting, the rate of the future would be faster and will cause the extinction of 1/3rd of the human population and extinction of many species on Earth (*SCIENCE*•24 Mar 2006•Vol 311, Issue 5768). Due to an increase in melting of ice in the North Pole, it has been predicted that polar bears will go extinct in the coming century. Scientists believe that the polar bears are already at their survival limits because of the melting of glaciers in Antarctica. Polar bears rely on seals but as the ice is melting seals are not coming out of water so the polar bears are not able to find their prey which is causing food starvation for polar bears (death from lack of food). Apart from polar bears, seals are also going to go extinct in the coming years due to warm sea temperature and melting of ice sheets(Ice surface) as it is their favourite place to rest. The rise in sea temperature is causing extinction of many species. It is predicted that by the year 2070 1/3rd of species will go extinct due to climate change (Doyle Rice, February 14, 2020).

Issue 2

Along with Climate change, deforestation has also played a vital role in the loss of biodiversity.

Deforestation is done by the cutting of trees for human activities or purposes like industrialization, urbanisation, mining, and agriculture. There are many causes of deforestation such as agriculture expansion. Agriculture is a major cause of deforestation as many large areas of forests are cleared or deforested for agriculture purposes like palm oil plantation in Indonesia has caused problems for many species and could be a cause of their extinction. Many companies are associated with palm oil plantation as it is a basic ingredient for many things like soap, snacks and shampoos. Due to this many forests are cleared for palm oil plantation. Along with palm oil plantations there are many other drivers of deforestation such as feeding livestock is a major cause of deforestation as increase in animal population is resulting in intensive deforestation. According to researchers about 80% of the deforestation is due to agriculture which is negatively affecting wildlife and species as their habitat is being destroyed at an intensive rate (Natalie Behring, n.d). Moreover, wood extraction for domestic and burning purposes is also a cause of deforestation as many rural areas do not have gas for cooking so wood is an alternative for gas in many rural areas. As the human population is increasing at an intensive rate, improvement in infrastructure is increasing by urbanisation, construction of roads and bridges. This is leading to more deforestation. According to researchers the deforestation done in Brazil could lead to an increase in temperature up to 1.45 Celsius (Jayme A. Prevedello, March 20, 2019). This huge change in temperature could cause extinction of many species around the world. Deforestation has many consequences like flooding, soil erosion, desertification, loss in agriculture (less food produced) and temperature rise. These consequences are already being faced as many areas around the world are being flooded due to temperature rise and causing destruction of many habitats. Due to deforestation animals and plants are losing their lives as their habitat is being destroyed by humans. The destruction of their habitat is causing a decrease in their population reproduction which is ultimately making them extinct. Such an example is of orangutans who are highly endangered due to deforestation and illegal logging as their rate of population reproduction is very low and their chances of extinction is very high (Marina McCoy, September 23, 2021).

Course of action

There are many ways to solve these issues which are causing biodiversity and ecosystem loss. All types of efforts could solve these issues whether it is an international effort, national effort or an individual effort. International efforts like the Kyoto Protocol in which an international agreement on climate change was showcased by the United Nation to decrease the rate of increase in temperature by reducing their greenhouse gas emissions (192 parties were encouraged in this agreement)(Kayte Loynes, n.d). National efforts such as US' Voluntary

programs, like the Natural Gas STAR program, were programmed to decrease gas emissions for stabilising the climate change (C2ES, n.d). Moreover, individual efforts like spreading awareness could educate others about climate change and could influence them positively. Planting more trees individually could be very beneficial for the environment as it can reduce climate change and make new habitats for animals. Such efforts could solve the issues of biodiversity loss.

Reflection

Before writing this report I was not aware of the issues which caused biodiversity loss but after the research I got to know that species are going extinct because of human activities and natural disasters are not the cause of their extinction. My perspective was changed during the research and now I believe that humans are the cause of the issues which are causing biodiversity loss. The facts which I got through the research made me aware of the current situation of the world like how deforestation of Brazil played a major role in climate change and how countries like the United States controlled the situation nationally and globally.

Evaluation of Sources

It took a lot of research to ensure that the sources were authentic and were true about the facts. All of the sources I researched and quoted are authentic as all of them are well known organisations and news networks such as the United Nation organisation, Green info network, European Union and other authentic articles of well known magazines. I used sources of authentic authors such as Doyle Rice who is a weathercaster and journalist at 'USA TODAY' since 2004.

Conclusion

This report has answered the question of 'how biodiversity is being affected by human activities?' Human activities have had a negative influence on biodiversity loss as many human activities have resulted in issues like climate change and deforestation which has destroyed habitat of many species. Many atrocities of human activities have been faced by the environment which had many consequences. These consequences resulted in biodiversity and ecosystem loss.

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Sample 6

Can water scarcity incite World War III?

Introduction

Water is an inorganic, transparent chemical substance; produced by a chemical combination of two Hydrogen and an oxygen molecule. It is an imperative need of life; living things depend upon water for their survival. They will eradicate without access to water.

“Till 2025, a large number of the population might face water shortage” (WWF). Water is a scarce resource, only 3% of which is freshwater, but most of, is frozen as glaciers. Henceforth, only one-third of the water is consumable. However, with rapid population increase, this seems inadequate to fulfil the necessities. Moreover, experts predict the lands of Pakistan may run dry by 2025″ just like most other South Asian countries. (Baloch., 2018) Leading to massive conflicts between nations; Indus water treaty between Pakistan and India, sharing the water of the Ganges between India and Bangladesh, East Asian and Central Asian Disputes. (Digest, 2017) In this report, I shall expound upon the importance of water and how its scarcity poses a menace to peace between nations and its threat to ecosystems.

I have decided to research this topic due to its relevance with the most sensitive issue nowadays, regarding water scarcity. Water being inadequate, may deplete, leaving us competing for every single drop. I feel large-scale conflicts such as world wars can never start under water scarcity whereas; people around me often repudiate my perspective. I want to analyse different viewpoints concerning the issue, adding to my facts and attaining an outcome.

Issue #1 Might is Right

Might is right is the ideology that certain members of society, dominant enough, would have superiority over the rest due to a conflict threat. In this case, powerful nations would take control over the waters and eventually would become the conquerors of marine waters, leaving small nations to tantalise for it. The South China Sea is a prominent example; the waters where two economically strong countries, the USA and China could clash. During President Trump's administration, the U.S had increased the amount of FONOPs within the South China Sea to

challenge China's territorial claims due to which their naval ships had the access to China's land. (Karen Leigh, 2020). China claims 80% of the area of South China Sea, which is one of the world's busiest shipping routes. America contradicts it by saying 30% of the area is for crude oil trade. Other than China, five other countries claim their territories in the South China Sea such as Vietnam, the Philippines, Brunei, Malaysia and Taiwan. Certain efforts were made to reach a solution; however, no fruitful outcome was achieved. (Karen Leigh, 2020). A specialist at Lancaster University on Chinese territorial claims thinks that the chances of clashes between America and China have escalated amid the South China Sea.

Not only do clashes arise between these nations but in the South Asian Subcontinent, between Pakistan and India on the Indus water treaty, in recent years India had violated the treaty and made the Kishanganga hydroelectric plant near Bandipur on the western waters that were given to Pakistan in accordance to the treaty, however, Pakistan raised this issue in UN but did not get any suitable feedback which raged anger in the Pakistani government (Baloch., 2018). Local disputes between the provinces also started on the building of the Kalabagh dam as it would affect the supply of water from the Indus River for Sindh, affecting the fisherman. The Uzbek Prime Minister Islam Karimov fears that these water disputes may lead to war (Milne, 2021)

The main reason for water scarcity and water disputes is the lack of proper sewage, followed by an increase in rapid population growth and a rise in urbanisation. Moreover, poor water management and lack of political will to come to a solution have amplified the scarcity and water-based conflicts. According to statistical data from OECD, in the U.S, an average person used $1730 m^3$ of water that is ten to twenty times more water than that is required by a person for necessities. (Milne, 2021)

Shahmeer Baloch thinks and I agree with him that Pakistan's economy has a high stability risk due to its water shortage; however, the authorities are still neglecting this issue which might result in problems such as a huge fight over water. This statement is supported by a claim made by Neil Buhne, UN humanitarian who says "no one in Pakistan, be it people of South or North will be immune to this scarcity and Pakistan may face water shortage". (Digest, 2017)

Course of Action and Analysis

How might we eradicate this problem? To prevent water scarcity, the Government of Pakistan is raising awareness on conserving water. It is the most important thing which would not only save the water from being wasted but it is also a convenient method. “Making reservoirs and water projects such as Turkey's Guneydogu Anadolu Projesi, consisting of 90 dams and 60 power plants' '

(Hirschfeld, 2020) which would not only store water but generate electricity as well. However this act of turkey is criticised in an article by Richard Fisher and Javier Hirschfeld as they feel that dams do store water however, a large number of the population is evacuated and large territory sinks in the water losing the culture of the area. (Hirschfeld, 2020) Moreover, I feel that after some time the capacity of the dam reduces due to silt reserves hence the dam loses its purpose and eventually has to be emptied which results in the waste of huge funds allocated for dam making.

Secondly, nations like Egypt are working on the construction of the world's largest wastewater treatment plant which would take years to complete. However, third-world countries with struggling economies cannot afford to spend substantial capital on expensive schemes like desalination plants.

Water sharing agreements are the best ways to deal with such issues and lower the risks of war such as the Indus water treaty signed between Pakistan and India and an agreement between Israel and Jordan signed followed by a peace treaty. “More than 200 such agreements have been made and are successful” (Milne, 2021), I feel this is the most suitable approach as the third world countries would comfortably abide by it and would reduce the pressure of war threat on them.

Issue #2 Drought a Menace

Drought is a prolonged period without any rainfall leading to a reduction of soil's moisture content. In this context, water is considered to be scarce and can aid several drastic consequences. Droughts can drastically affect an area in several ways. Between 2002-2009 the south-eastern part of Australia experienced the worst drought ever, reducing the water supply of 2 million inhabitants. (BBC, 2016)This would, however, not only affect the agricultural sector of Australia but the water-dependent industries might suffer as well. I believe that drought itself destabilised a country’s economy, lowering its GDP. In my country, Pakistan, areas such as TharParkar often experience long drought spells which lead to several diseases and malnourishment in the area. Pakistan’s Red Crescent Society says that the drought in Sindh and Balochistan is rapidly increasing its intensity (Tunio, 2019). Muhammad Riaz, a climatologist said droughts in Pakistan were rare but now even the well-irrigated areas often experience droughts. (Tunio, 2019) This shows his statement supports the Red Crescent Society. However, this drought in Pakistan is leading to large migrations and urbanisation that in turn leads to overpopulation. In my perspective, this might increase pollution.

Several reasons are leading to drought, environmental or human. People in my family and locality believe drought occurs due to reduced levels of rainfall and I agree with them as rainfall

distribution is affected by air blowing above it, so changed air circulation patterns affect the rainfall of that area. However, according to a study from 1960 to 2010, the domestic use of water increased the speed of droughts by 25%. (Denchak, 2018) Hence both human and man-made activities contribute to drought. Moreover, draughts are also caused due to fluctuations in the ocean and land temperatures. Research shows temperature changes in the North Pacific and North Atlantic Oceans leading to extreme weather patterns, including prolonged droughts in North America and the eastern Mediterranean areas. (Denchak, 2018)

As a result of drought, commercial farms growing cash crops fail, the quality and quantity of the products reduce, and thus the farmer may lose his income and may result in unemployment. This would in turn become an issue as food shortage may occur. Secondly, inflammation might take place which would affect the poor and unemployed locals. Moreover, exports would be decreased due to the shortage of cash crop production, attaining a low GDP. Other than these cash crops, small-scale crops would be affected which might lead to famine and hunger amongst the farmer community. Water is scarce during a drought, supply of clean water decreases due to which people are forced to use contaminated water which might contain bacteria and germs leading to illnesses such as Cholera and deficiency diseases such as malnourishment, this reduces a country's health rate.

Course of Action and Analysis

How will we solve this problem? Alexandra Cousteau, a national geographic explorer, has started a nonprofit Blue Legacy, aiming to raise awareness about water-based issues. (National Geographic Society, 2020) By acting on this initiative, I believe she will increase awareness regarding this issue; hence, more and more people would get to know about the problem. Secondly, educating one generation would ultimately enlighten the forthcoming generations. Henceforth, it's a cheap yet easy method of solving this crucial problem.

The government of Sahel, an African country, is encouraging its farmers to cultivate drought resistant yields. (BBC, 2016) By doing so, occurrences of famine would decrease during a drought; commercial and subsistence farming practices would not be affected. I believe this is possible with the government's assistance, resolving the drought threats amongst the farmers and it would be a relief for them.

In Australia, farmers use Electromagnetic images which helps them to find new hidden water reserves underneath the fields. (BBC, 2016) This is practised to locate the water reserves and utilise them when there is no water on land, saving the yields from dying and preventing huge losses. This practice can easily be carried out in developed countries, however; I feel in developing

countries such as Pakistan, it would be an obstacle to practise such expensive methods, requiring several pieces of equipment. Also, because a large number of farmers practise subsistence farming and would not be able to afford the expenses. In a nutshell, this might not be a suitable method to overcome the problem.

Evaluation of Sources

Overall, the reliability of sources used is uniform and authentic. One-third of the sources used are from BBC and National Geographic, the reliability of which on water-related issues cannot be doubted. News Reports from reputable newspapers which include BBC, The Guardian, the humanitarian times and less reputable youthkiawaz, the Hindu and DW have been used. The biasness doesn't matter as I aimed to extract facts. As a whole, my sources are predominantly reliable. DW is part of a large renowned and reputable organisation, having a balanced and recent approach. The Guardian, another source used, is an internationally recognized reliable source of information. "How dams have reshaped our planet", a recent article only delineated the disadvantages of dams, but the points proposed were viable, having a balanced approach.

Conclusion

Although, before beginning my research, I was aware of the consequences the world might face due to water shortages. However, detailed research about the relevant issue contributed to my facts and polished my perspective about the efforts made by international organisations as a whole such as the UN to make peace agreements, policies and protection projects started by different countries such as Turkey and Egypt are constructing dams and wastewater treatment plants to diminish the threats of water shortage and post-drought outgrowths.

Henceforth, my perspective has shifted. I thought water scarcity could only lead to cold wars and world war-scaled extensive conflicts can never be expected due to water scarcity. However, after writing this report I have concluded that the war can proceed on this issue starting from the Asian region, between Pakistan and India on the Indus water treaty or America and China on the South China Sea.

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Sample 7

Has the ongoing COVID19 pandemic affected the lives of teenagers?

Introduction

The pandemic which has been spreading in the world came with a lot of disastrous and devastating impacts, one of which is the damaged mental health and worsened physical health of teenagers while they are locked up in their houses. The restrictions implemented due to the ongoing pandemic are affecting the mental health of teenagers with visible signs of depression and anxiety. (Drillinger, 2021) More than 50% of 16 year olds have felt their mental health being significantly damaged during this pandemic situation. (Meredith, 2021) According to a survey conducted by UNICEF 46% of young people feel less motivated to do stuff they enjoyed before the coronavirus. Also, there is a rapid decrease observed in the physical health of teenagers as physical activities are minimised affecting the mental as well as physical health of the youth. (Anon., 2020)

Every child is stuck in their homes, unable to perform their daily life tasks, cut-off from physical activities due to the current spread of a deadly virus. Hence it is negatively impacting their mental as well as physical health which is deteriorating every single day due to lack of physical activity. Is there any solution or any way in which the health of our youth could be saved? Can the effect be reduced? These questions forced me to discuss this neglected yet one of the most serious issues and hence, it inculcated me to do a detailed research about this topic and develop my personal stance on this issue.

In this report, I shall focus on the impact of this pandemic on the mental health and physical health of teenagers, the global, the local and the national perspectives and I will put forward possible courses of action to minimise such cases in which teenagers have to under-go such stressful circumstances in their lives.

Issues

After my initial research on the topic on mental health in teenagers I came across several crucial

issues and circumstances yet I decided to include only the most important and prominent ones. The issues I included in my research report are 'Academic stress leading to damaged mental health' and 'Effect of quarantine on physical health' as I felt that these are the most important ones.

Issue 1: Academic stress leading to damaged mental health

There are a number of problems related to disturbed mental health of teenagers during this current wave of pandemic but I chose to focus on the academic stress leading to damaged mental health for my issue.

During COVID19, many students and teenagers are dealing with the worst mental stress due to academic pressure. Research shows that with the other devastating impacts of the widely spread virus also comes damaged mental health of students along with symptoms of depression due to academic pressure. Students were forced to clear their semester or grade with the help of remote learning from their homes which came with a lot of disruptions and interruptions. (Clabaugh, 2021) An online survey was conducted of Pakistani medical students which revealed that the students of medicine were frustrated due to the dysfunctional remote learning as the field of medicine is a lot more complicated. (NAEEM, 2020) A case study done by ResearchGate shows that many students are facing problems with remote learning either due to unavailability of devices to take classes which is a major problem in Pakistan as many people can't afford devices to carry out online classes or the fluctuations in internet connectivity. This stacks up work for the students which results in academic pressure and stress when the exams are close to being conducted. (CASE STUDY: ACADEMIC STRESS DURING PANDEMIC, 2021)

One of the major causes of academic stress in this ongoing pandemic is the lack of availability of networks and signals in remote areas as these areas are still under development. Students living in these areas have to face connectivity problems due to which they are unable to consistently take their online classes. Even in developed cities, there are still some connectivity issues faced as the students need to take classes for at least 5 hours straight. In households where 2-3 children are taking their online classes, the internet speed slows down due to multiple devices using the same network which burdens the router. (Mylsidayu, 2021) Another major cause of academic stress during the COVID19 pandemic is the change in schedules of students due to lack of routine, unlike normal school days. (Yang, 2021) According to a survey conducted by PMC, it is concluded that 60% of the students are facing major problems in continuing online education due to disruptions and lack of concentration due to their current environment. Lack of personal space to continue online learning is a major cause due to which students are being left behind in their

studies. (Clabaugh, 2021)

Due to various reasons when a student is unable to take their classes regularly, they are left behind on their syllabus. The incompletion of the syllabus burdens the child at the time of examination which leads to a large amount of stress. But even then, the student has to sit for the exam no matter the circumstances. An unprepared exam obviously would lead to worse grades. These grades for students who are in college or high school matter a lot. Their future is dependent on these grades. And when the requirements and expectations are not met, students go through a worse phase of life and sometimes also deal with depression because they see no future ahead of them and feel hopeless. These consequences in some cases lead to worse situations like suicide attempts. (Pascoe, 2020)

Course of Action and Analysis

Now how do we tackle this problem? First of all, to manage and organise your day a student must plan it out by creating a certain timetable or planner. By organising your day, you can easily cope up with your studies which will eventually decrease academic stress. For cases where online classes are a major concern, one should arrange themselves a tutor and if not that one should ask for individual help from either the teacher or a family member who could help you out in that particular problem. For keeping yourself focused while attending lectures online, one should find a quiet place where they can concentrate properly. (Yasmin, 2020)

Issue 2: Effect of quarantine on physical health

There are a number of problems related to disturbed mental health of teenagers during this current wave of pandemic but I chose to focus on the academic stress leading to damaged mental health for my issue.

I, myself am a witness to lack of physical activities and sports during the time of quarantine. In Pakistan public centres like gyms and parks were all closed, limiting sports and physical activity facilities. With other devastating effects of COVID19 comes damage to physical health for example obesity. During the time of lockdown and quarantine, the eating habits and routines of everyone have changed drastically. This is leading to worse physical health conditions, one of which is obesity. No physical activity during COVID times has also contributed to making the effects even worse. (Mattioli, 2020) During COVID as everything has been shifted online, the screen time of teenagers has rapidly increased as they are expected to sit 6 hours in front of the screen for online classes. As there are worldwide lockdowns, people are to stay at home and the

children living in urban areas are not able to go out and carry the physical sports which have led to obesity as they spend most of their time playing online video games. (Rundle, 2020) The major cause of obesity during corona and lockdowns is the closure of schools. A study conducted by an Italian showed that the closure of schools and public places
has led to poor sleeping patterns as teenagers stay up all night staying in front of the screens which is leading to laziness. And inactivity is the major reason for obesity in teenagers. (Jia, 2020) There are some worse consequences of obesity. Obesity leads to numerous diseases like Type 2 Diabetes. These diseases in worse cases can cause death and various disabilities. (Anon., 2013) These diseases during the time of coronavirus can be expected to be more dangerous and life-threatening as there is a prominent effect on your immune system which during COVID shall be kept very strong. Laziness and inactivity during the quarantine time may lead to more diseases like increased blood pressure and high chances of developing cardiovascular diseases which may become a life-threatening disease. (Patel, 2020)

Course of Action and Analysis

So, the question now arises how to eliminate all these consequences? First step is to adopt a healthy lifestyle with a balanced diet so all of us can protect ourselves from different diseases. Secondly, as gyms and sports complexes are closed due to the virus, we should practise physical activities like exercise and yoga at home to keep ourselves fit despite the closure of public facilities. Another way to tackle this situation is to create awareness among societies where the obesity rate is high like the United States. By creating awareness people will come to know about the disastrous effects of obesity which they can eliminate by adapting a healthy lifestyle. Moreover, our governments can play their part as well by putting a ban on advertising of food items that contain high amounts of fats so more people could limit the consumption of fat-high foods in their diet. Moreover, our governments can play their part as well by putting a ban on advertising of food items that contain high amounts of fats so more people could limit the consumption of fat-high foods in their diet. (Anon., 2021)

Source Analysis

The sources I used in my research are generally authentic while half of them are from trusted websites like UN, WHO and UNICEF. These organisations are trusted and are well-reputed worldwide and hence their authenticity and liability cannot be doubted. Other websites that are used in this research report were mainly to refer to some statistical data which was extracted after doing a proper survey and research. I used some data from international websites, such as

the UN which is an extremely reliable source to get information related to mental health and its effects on teenagers. I also gathered information from websites like nature.com, sciencedirect.com etc. which are less-reputable yet reliable sources to refer to when doing research related to health-related issues as they included a number of issues and statistics. In addition to that, the articles from which I developed my report were not older than 2020 except only one which shows that the sources of information were authentic and reliable hence the information presented was latest and up-to-date.

Conclusion

Before starting my research on the topic, I was aware of the problems many teenagers would be facing due to the current pandemic. However, when I carried out a detailed research, I gained a lot of knowledge and learned a lot about dealing with mental and physical health issues which I would definitely implement if ever required. I got to know about the disastrous effects of COVID which I didn't previously pay attention to like obesity. Previously, I never thought that stress could lead to severe depression and could harm your mental health really badly. I never knew that being obese could actually link you up to so many harmful diseases. Same goes for mental health. I thought of stress and anxiety as a normal thing but after this thorough research and study I came to know that stress and anxiety are some serious problems in our society which are being neglected.

Sample 8

Should hydro-electric power be used as a source of energy in the 21st Century?

Introduction

Hydro-electric power is a kind of energy that utilises the power of moving water to generate electricity. (National Geographic Society, 2019). Hydro-power accounts for 17% of total electricity production. (USGS , n.d.). It is categorised as a renewable energy source for the reason that it is dependent on the natural hydrological cycle to produce electricity. It is 90% efficient in converting kinetic energy to electricity. No fuels are burnt and there is no release of direct emissions in the surroundings. (FergalMcEntee, n.d.). In this report, I will try to examine and research into the possibility of considering hydro-power as a feasible alternative to fossil fuels as fossil fuels are a major source of energy currently at a global level.

Perspectives for Hydro-Power

The extra dependency on fossil fuel reserves exerts pressure on the already limited resources of fossil fuels which may cause a negative impact on the environment. According to the IPCCQ report, the highest growth in GHG emissions between 1970 and 2004 was caused by the fossil fuel dominated energy supply sector. In comparison, Hydro-electric power produces a compact amount of greenhouse gas emissions. In producing less GHG as compared to coal, oil or gas power plants, hydroelectricity can therefore contribute to mitigating environmental pollution. Today hydroelectricity prevents the release of GHG in comparison to the burning of 4.4 million barrels of petroleum per day worldwide. (USGS ,n.d.) Moreover, hydroelectricity does not generate hazardous by-products. Fly ash is not generated during the production process, allowing it another advantage over other means of electricity production. (Mussa, 2018)

Hydroelectric power is a cost effective competitive energy source. It is credited as the cheapest source of renewable energy. It produces energy at an average of $0.05 per kilowatt hour. Such alternatives are now able to equalise with the cost of fossil fuel power plants which standardly have a range of $0.05 to over $0.15 KWh. (Dudley, 2019). Fossil fuel resources are not equally distributed. Nations without fossil fuel potential are dependent on imports. International prices

and the need for security of foreign currency exerts economic pressure. Therefore "energy security" is essential which can be achieved by the use of hydro-electric power in particular and other renewables in general. (Kaunda, 2012)

Hydro-electric power is a renewable energy resource. This is important because the fossil fuels reserves are decreasing whereas the demand is increasing. This inversely proportional relation between the two will result in higher prices in future due to the supply shortage.

The supply demand can be worsened by any political conflicts that exist. The conflicts can have an unfavourable impact on the production status. (Kaunda, 2012). It is therefore important to make arrangements for a resource which does not have limitations.

Hydro-power therefore is vital as a source of energy production. As a local example to this, in the northern areas of Pakistan micro-hydro projects (MHP's) have been created. They can produce between five to a hundred (KW) of power according to Fahad Saeed, a Pakistani climate scientist at Berlin-based climatic analytics. The 100 KW Jungle was constructed in 1984 and later upgraded. It is now an electricity supplier to an additional 4000 households,82 hotels, 37 mosques and all government offices and buildings meeting the 1600 KV requirement of the entire city of Kalam. (Ebrahim, n.d.) In the EU-28 countries hydro-power is held accountable for its 14% contribution of all primary electricity. Hydro-power gives Norway 99% of its electricity. At a global scale countries such as those of Sweden, France, Italy, Austria and Spain produce 70% of hydro-power. (FergalMcEntee, n.d.)

North Rhine WestPhalia, a region located in North-West Germany is ready to transform its unused Prosper –Haniel hard coal mine into a 200-MV pumped storage hydro-electric reservoir. It will act as a super-giant battery with enough capacity to power over 400,000 homes for up to 4 hours when needed. (FergalMcEntee, n.d.)

Hydro-electric power is renewable, produces less emissions and is cost effective. Being renewable is the most important trait because it guarantees an unlimited resource supply. The other effects of hydro-electric power can be countered but by no means can the fossil fuels be turned into a renewable source. Other factors such as those of cost-effectiveness and less environmental pollution are covered under the area of renewability.

Perspectives against Hydro-Power

Greenhouse gases are generated in the instalment and de-construction of hydro-electric power. Recent research suggests that emissions produced during such activities can also be significant. Small-run of- the-river plants give rise to 0.01 and 0.03 pounds of carbon-dioxide equivalent per

kilowatt hour. Approximates from life-cycle global warming producers from hydro-electric power plants built in tropical areas or pet lands are much more significant. After the flooding of the area the vegetative matter and soil decay to produce methane. Life cycle emissions can generate over 0.5 pounds of carbon-dioxide equivalent. Assessments of these cycle emissions for natural gas generated electricity are said to be between 0.6 and 2 pounds equivalent per kilowatt hour.

For coal generated electricity, the amount ranges from 1.4-3.6 pounds of carbon dioxide equivalent per kilowatt hour. (Union of Concerned Scientists, 2013)Analysis of the data has allowed some people to arrive at the conclusion that hydro-power alone is responsible for a staggering 4% of GHG. (FergalMcEntee, n.d.)

Seemingly, hydro-electric power which had been credited as the “white coal” does contribute to some degree to environmental pollution. Therefore hydro-power is not a solely clean solution to environmental pollution.

The mark left by these plants on the balance of the aquatic system has received attention. The report from the World Commission of Dams states that dams will have effects on the native organisms and the flow regime. It can also affect the migration of aquatic organisms. Many fish travel to the upper part of the waterbody to reproduce. With the construction of dams, the migration route of the fish is blocked. This blockage results in decline in the number of fish. (Mussa, 2018). Moreover, the turbine blades can harm fish or other organisms.

The river water is commonly more motionless than normal water. This results in a higher amount of sediments and nutrients in the waterbody. This can allow for the growth of excess algae and other aquatic weeds. This can result in overcrowding, posing a threat to river animal and plant life.

If a large amount of water is stored behind the reservoir segments of the river downstream from the reservoir can dry out. Therefore, most hydro-electric plants are required to release a small amount of water at certain times of the year, if this water is not released properly water levels downstream will drop and animal and plant life can be harmed.

Reservoir water has low levels of dissolved oxygen and has a colder temperature than regular river water, when this water is released it could have harmful impacts on downstream and animals.
The construction of hydro-electric power plants requires the flooding of land. This flooding of land is the cause of an environmental footprint. Flooding can cause the destruction of forest, habitats, agricultural land, wildlife and beautiful lands.

Such evidence therefore displays another example of human-nature conflict and can cause a

negative footprint.

Another impact of hydro-electric power is that of causing greenhouse gas emissions. This is most significant because the emission of greenhouse gas is the root to climatic problems, all other problems can be countered by adopting appropriate means, greenhouse emissions are a harm for the environment and cannot be countered in a shorter period. Even the slightest of sources can pose a threat to environmental stability.

Course of Action

Dam removal is becoming a commonly used choice globally to reduce the harmful effects of hydro-power. It is taken into consideration for old dams which require renovation or small dams which have lost their capacity or are no longer in use. Dam removal allows for fish migration, which in turn allows them to reproduce in the flowing water. However re-building of the dam may result in the release of GHGs as earlier stated.

To ensure the compatibility of hydro-power systems with rivers, relevant governments should take note of measures for example, water should be released with less pressure to ensure the protection and safety of aquatic organisms. The building of sedimentation measures also helps in the cause. Small-weirs play the role of a filter funnel; the trapped sand particles can then be manually removed. This allows for a cleaner river system. Migratory corridors are also essential in supporting the movement of aquatic organisms. However manual work requires labour and time. However, this may result in less energy being produced and may not be suitable for all countries. Such measures however might prove economically burdening for developing countries such as Pakistan.

Evaluation of Sources

The information used differs in its reliability. Most of the sources consulted lacked dates and names, such as those of “USGS”. This therefore reduces the authority of the source. Most articles lacked the name of the authors, and the articles which did mention the names did not include the certifications of the respective author. This also makes one question the reliability of sources as without knowing the expertise of the author it is difficult to judge on the accuracy of content. The statistics could have changed over the years, if the date is missing it could not be decided if the information is up-to-date. The use of hydro-power has increased over the years and new perspectives could have been raised. However, the sources contained relevant sources of information. The arguments presented were backed up by effective evidence, names of credible

departments were also cited for example the article from “USGS” used the statistics from “International Energy Department”, this shows that information was coming from a relevant source. The article from “lupine publishers” did not adopt an argumentative approach, therefore his perspectives can be considered as weak.

Personal Perspective and Conclusion

I however was not able to research the content to the fullest extent due to word limit restrictions, for instance I was not able to research perspectives for and against the topic to the maximum abilities. However, I did look into global and local perspectives at a suitable amount.

Prior to the research I considered renewables and hydro-electric power as a sole positive for the environment. I was not aware of the negative aspects which may have been caused by hydroelectric power. I was never aware of the fact that a source as renewable as hydro-electric power can be a contributor to GHG emissions. The research therefore made me more aware of the negative impacts of hydro-power. The research also introduced me to new technologies such as those of dam removal and sedimentary measures to mitigate these negative impacts which otherwise were not in my knowledge.

The research also allowed me to explore some of the projects such as the Khawar dam project which my own country has developed in the field and the contributions it has made. I was also made more aware of global efforts which are being made and the necessity of taking such initiatives.

Sample 9

Is it possible for cities to ensure net zero emissions by 2050 through sustainable living practices?

Introduction

Cities are home to half of the world's population, covering 3% of the earth's land surface. According to the World Bank, 55% of people reside in cities today. They generate three-quarters of greenhouse gas emissions globally due to an increase in the urban population. As a result, an increase in population would double the variation of energy consumed, like non-renewable energy, including fossil fuels. Consequently, the world would face accelerating consequences of climate change like scorching heat waves, record-breaking wildfires, rising sea levels, glacier melting, and frequent natural disasters. These daunting consequences are currently appearing more frequently and will have a devastating impact in the future. Climate change, rapid urbanisation, lack of urban planning, and carbon emissions by vehicles are compelling causes. Holistic approaches should be taken, including reducing carbon emissions and carbon footprints or seeking low-carbon alternatives. Therefore, to pledge to attain net-zero by 2050 in reality, action must be initiated from the cities because they are the beating heart of business, commerce, trade, and society. Hence, it is crucial to adopt sustainable living practices, obey ambitious policies and make urban planning in cities so that the global greenhouse gas emissions can be reduced by half till 2030 and reach net zero around mid-century. The term net-zero implies that we must reduce our emissions to as close to zero immediately and eliminate as much carbon out of the atmosphere as we add to it. After an international consensus, to keep global warming below 1.5 degrees, attaining net-zero by 2050 was considered the only way to mitigate climate change and avoid irreversible damage to the planet. Sustainable living practices have proven to be the most efficient fighting against climate change. Most cities have put forward more substantial climate commitments that collectively put us on a path to net-zero by 2050. Subsequently, this process will ensure a healthy and bright future for the next generation on earth.

Causes

Previously, people lived in small communities; however, over the past few centuries, the number of people living in urban areas has dramatically increased due to the mass migration of the population from rural to urban areas. Mass migration is the movement of people from one place to another. Many people leave their homeland to settle at a potential destination, where better job

opportunities and essential resources are available. The primary cause of mass migration is industrialization. The advent of the industrial revolution originated in the middle decades of the 18th century that revamped business, economics, and the fundamental structures of society. Industrial revolution is the primary driver of carbon emissions because of the insidious factory based industries, coal fires, steam engines, and other machinery. According to the United Nations, the percentage of the population living in urban areas today is 55%, and by mid-century, 68% of all humans on the planet will settle here. This increase in rapid urbanisation is responsible for emitting 75% of carbon emissions in cities. Moreover, carbon dioxide in the atmosphere is now reaching levels 50% higher than before the industrial revolution. Carbon dioxide concentrations are rising largely because of the fossil fuels that people are burning for energy. The reason is that when more people settle in cities, they contribute to more carbon emissions through transportation, electricity production, industry, commercial and residential sectors. These sectors are all held upon by the edifice of fossil fuels, and the emission of carbon dioxide from burning coal, oil, and gases created today's climate emergency. For instance, the transportation sectors share the most significant greenhouse gas emissions. It accounts for 20% of all carbon dioxide emissions globally because of being predominantly based on the combustion of fossil fuels. Commonly used vehicles in cities like passenger cars, heavy-duty trucks, light-duty trucks, and minivans contribute to these emissions. Secondly, electricity production is the second-largest contributor to greenhouse gas emissions. Industry sectors that are responsible for producing raw materials, produce direct and indirect emissions. Emissions produced by burning fuel for power or heat are direct emissions. These human activities like fossil fuel burning and nonrenewable energy resources cause greenhouse gases to trap heat, causing global warming and devastating climate change phenomena. In addition to this, the lack of urban planning has equally contributed to worsening the amount of greenhouse gas emissions as well. For instance, the energy required to build, maintain and run buildings has resulted in a significant contributor to carbon dioxide emissions in cities. Concrete, a commonly used material used in buildings, is a substantial source of carbon emissions. Continuing to construct buildings from concrete and steel could mean emissions to reach 600 million tonnes a year by 2050.

Consequences

Cities are vulnerable to the consequences. The results of industrialization, urbanisation, burning of fossil fuels appear as climate change and global warming, and an increase in natural disasters like frequent storms, droughts, forest fires, air pollution, and smog. These consequences threaten to make life in many cities unbearable if emissions through urbanisation, lack of urban planning, and industrialization keep surging continuously. If the global emissions continue on their present trajectory, and the average limit of 1.5 degrees rise in temperature until 2030 is surpassed without any abatement, cities will face catastrophic impacts. Phenomena like global warming will cause depletion in the ozone shield. The destructed ozone layer allows ultra-violet radiation that reaches the earth's surface, which can cause non-melanoma skin cancer. Not only this, but plants are susceptible to these radiations as Ultra-violet radiations affect plants' physiological and developmental processes. Consequently, the radiation harms crop yield and quality. Rapid urbanisation, agricultural expansion, infrastructure expansion, and population growth result in deforestation. Hence, its outcome is desertification, soil loss, and diminishing land and water productivity. Desertification and global warming are intricately connected—variation in precipitation patterns and rise in temperature increase dryland debasement and desertification rates. Hence, major river systems will gradually dry out. Throughout these years, ecosystem degradation and desertification have emitted more carbon dioxide into the atmosphere than burning fossil fuels. Natural disasters like erratic weather patterns, including heatwaves, floods, severe storms, loss of polar ice, and rising sea levels, will appear vigorously. Rising sea levels driven by climatic change pose a conspicuous threat to coastal cities: this occurs when sea level rises and rainfall upsurges. For instance, Karachi, Pakistan's largest city, is sinking underwater. Other examples of cities include Kolkata, the capital of India's West Bengal province which is home to nearly 15 million people. In addition to that, climate change increases the risks of wildfires. These forest fires devastate the ecosystem and augment a considerable quantity of carbon into the atmosphere when they burn. Forest fires result in widespread tree demolition; hence the land absorbs less carbon. According to the World Health Organization, climate change can be a driver of worsened health effects resulting from the release of toxic air pollutants in vulnerable populations. Children, elderly people, and those with asthma or cardiovascular disease are prone to its effects. Smog occurs when emissions from combustion fossil fuels react with sunlight. Smog and soot are results of excessive emissions from cars, trucks, and industries. Plus, smog can also

cause eye irritation and damage the lungs. Climate change affects city inhabitants more because of highways and polluting factors like industries, vehicles, and urban infrastructure.

Possible Courses of Action

The detrimental consequences call for immediate action because if the pace at which human activities are emitting carbon emissions remains steady, our world will face devastating impacts. According to the UN Secretary-General, the benefits of making cities more environmentally friendly are enormous and include reduced climate risk, more jobs, and better health and well being. A decarbonized society is entirely possible, but only if we undertake these actions in an articulate and collaborative manner. Primarily, to fulfil the Paris agreement's pledge and achieve net-zero by 2050 in cities, action plans can be categorised into three pillars: reducing CO2 emissions, increasing resilience, and education. There are various innovations that can help us achieve the purpose of reducing CO2 emissions. One of the biggest challenges cities are facing are their carbon emissions from transport. Therefore cities should renovate their transport sectors by introducing electric-powered vehicles. City residents should be encouraged to cycle instead of driving for short distances. Such an example is Paris which has created 650km (400 miles) of new cycleways and is aiming to establish a whole city for bicycles by 2026. Apart from transport, another dominant contributor to CO2 emissions is urban infrastructure. To mitigate emissions that are produced by heating, cooling, and powering buildings, alternative energy sources should be used in their designs, making buildings less resilient to fossil fuels. In Singapore, architects and city planners have tried to use plants on the outside of buildings to combat pollution and high temperature. Ultra-efficient, smart energy infrastructure, clean electrification means electricity that is backed up by zero-carbon energy, for example, wind and solar energy. While cities are adopting possible ways to reduce their ramifications, they must also build resilience to face the challenging climate. In particular, introducing policies like boosting the use of rooftop solar panels across the buildings would, in return, reduce our reliance on fossil fuels. This is because now is the time to act, to prevent damages in the future.

Comparison of Issues

There are no one-size-fits-all solutions because each city requires its own pace of development and integration. All cities cannot acquire zero emissions by 2050 through sustainable living practices. Countries often took pledges in the Paris agreement; however, no policies or steps are being taken to implement and execute this plan in some cities. For instance, Pakistan has not announced a net-zero year, and there is no evidence of any city acquiring net zero emissions by adopting sustainable living practices. Unlike major CO2 emitters like Shanghai or Beijing, in China and Istanbul, in Turkey, Pakistan does not produce such a massive amount of carbon emissions

on the whole. In reality, Pakistan is responsible for 1% of global emissions. Therefore the country is paving the way towards climate-friendly development based on nature and clean energy instead of entirely aiming for net-zero. Moreover, because Pakistan is an underdeveloped country, there is less finance to implement sustainable living practices such as the transition to electric-powered cars and renovation of urban infrastructure at a faster pace. In contrast, one of the carbon-neutral cities, Adelaide, located in South Australia, has already become one of the first carbon-neutral cities in the world. It has a 100% emission reduction target by 2025. Adelaide's sustainable living practices involve zero-emission transport, 100% renewable energy, solar power on buildings, improving building infrastructure, and waste and recycling at work.

Conclusion and Personal Perspective

Although cities can ensure net zero emission by carrying out sustainable living practices, however, considering the fact that every city has a different number of population density, economic health and size of the city therefore the aim to achieve net zero emission by the year 2050 would not be possible for all cities to achieve. Rather, some cities have their goals set to achieve net zero by the year 2060, while others like Adelaide have planned to achieve net zero by 2025. Apart from that the consequences of high carbon emissions are not just frequently occurring natural disasters, instead cities can become poverty stricken as well.

Analysis

The first source I am evaluating is https://en.unesco.org/courier/2019-3/zero-carbon-starting cities. This source is regarding possibilities of decarbonizing a society, by using various ideas and implementations. Strength of this source is that it contains a complete citation that mentions the author's name, Manuel Guzmán Hennessey and his areas of expertise. It also states that he works as a founder of Klimaforum Latinoamérica Network (KLN) that is an independent organisation dedicated to promoting climate actions and contributes to decarbonizing a society. Furthermore, the source is a publication of UNESCO which makes it reliable. Moreover it highlights a global viewpoint that does not make it biassed. The next source i took into consideration is https://www.worldbank.org/en/news/immersive-story/2018/01/31/3-big-ideas-to-achieve sustainable-cities-and-communities. The source is a publication of World Bank being the first strength. It mentions the ideas to achieve sustainable cities and also highlights the detrimental impacts of rapid urbanisation in cities. The source also contains a range of statistical evidence that shows worldwide rural and urban population over the years. In addition, it contains testimony of Ede Ijjasz-Vasquez who is the Senior Director of the World Bank's Social, Urban,

Rural and Resilience Global Practice, this makes it reliable. Also, it refers to various countries that cover all global viewpoints. On the contrary, the source mentions testimonies from residents of cities, that can make the source weak as it might add biasness into it, and its year of publication is 2018 that is not recent. The third source being evaluated is https://www.bbc.com/future/article/20211115- how-cities-are-going-carbon-neutral. The source is taken from an authentic website that is BBC. The source suggests various ways in which cities can go carbon neutral. Although the source mentions the author, it does not mention the author's areas of expertise and credentials which can make the reader question its reliability.

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A Note from Mojza

These notes for Subject(code) have been prepared by Team Mojza, covering the content for AS Level 2022-24 syllabus. The content of these notes has been prepared with utmost care. We apologise for any issues overlooked; factual, grammatical or otherwise. We hope that you benefit from these and find them useful towards achieving your goals for your Cambridge examinations.

If you find any issues within these notes or have any feedback, please contact us at support@mojza.org.

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