

CLIMATE CHANGE WITH REFERENCE TO ARTIFICIAL INTELLIGENCE

V.Gopi Ranganath*

[Abstract: Climate change is a global problem, and addressing it involves both reducing carbon emissions and adapting to its impacts. The researchers from around the world have come together to study the basis and effects of a warming world, concluding that increases in human-induced GHG emissions since the Industrial Revolution are the 'main cause' of the unprecedented rise in global temperatures. The United Nations Intergovernmental Panel on Climate Change (IPCC) 2022 special report found that limiting global warming to 1.5 degree centigrade is necessary to reduce the challenging impacts on ecosystems and human health and well-being. The word 'climate change' has defined in their own sphere. Ultimately, it reaches to the same thought. Climate change refers to change in weather and rainfall. The concept of Artificial Intelligence (AI) has expanded in all spheres of life. There is limited speculation that AI can solve climate change, but it argues for its use to shun some of the low-hanging fruit that contributes to the problem of widespread greenhouse gas (GHG) emissions. The world has a renowned moment to restart upcoming evolution with climate complaint, de-carbonized technological developments. Artificial Intelligence (AI) can be a dynamic advanced mechanism in the fight against climate change. This advancement may change to a pristine, more energy systematic and structured economy. United Nations Environment Programme's World Environment Situation Room (WESR), launched in 2022, is one digital platform that is leveraging Artificial Intelligence's capabilities to analyze complex, multifaceted datasets. In many cases, it is going to make our lives more comfortable. The special thing is that artificial intelligence is also going to reduce the damage caused by humans to the environment. In some cases even going to fix it. All these years our development has helped us. The weather is warming up. Greenery is thinning. Rivers are melting. Species are dying out. All Panchbhutas have become polluted. Man now has a chance to correct his mistake. That opportunity is provided by 'artificial intelligence'. AI is particularly suited to solving questions related to climate change, an area fraught with big data challenges. Monitoring of GHGs and their sources has been ongoing for decades, but interpreting, analyzing, and productively using the data has been difficult. Meaningful climatology requires the collection of large amounts of data on many different variables such as temperature and humidity, but working with such large data sets is challenging. Governments often lag behind in developing policies for technologies once they are widely adopted. However, some emerging technologies have an uncertain impact on GHG emissions, and implicit choices in the technology's design or use have shaped their impact. For example, incentives for self-driving technology that improves public transportation could help make this AI-enabled technology overall more beneficial than detrimental to the climate. This paper focusses on the aspect of artificial intelligence in tackling and helping climate challenges.]

*Professor, School of Law, Christ (Deemed to be University), Bangalore.

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I

Introduction

The world is currently at the stage of a technological revolution¹. This phase is transformative. This technological revolution permeates all sectors². Artificial intelligence is a part of this technological revolution. They are inextricably linked. In this context, the role of 'Talos'³ in Greek mythology must be recalled. It is a huge machine made of copper which protected the 'island of Crete' from invaders. Every day it circumambulates the 'island of Crete' thrice and observes the sea waters. If the enemy comes to occupy the 'island of Crete', it destroys their ships by throwing huge stones. The proof of the hypothesis of 'artificial intelligence' may be considered as 'Talos'. This story of a tale of 'Talos' reminds us that always some new invention or discovery takes place. 'Artificial Intelligence'⁴ (AI) is the ability of the machine to assess the situation on its own and take appropriate action. It works based on some step-by-step analysis (algorithms). But until now, these algorithms⁵ have only served to facilitate the work of humans. Now, efforts are being made to use them to protect the environment. When we hear the word 'artificial intelligence', we think of a talking monitor and a walking robot. A machine world greets you strangely. In fact, 'artificial intelligence' is much broader than the above-mentioned devices using artificial intelligence to a minute extent. If observed carefully, this is the force that rules our lives from the moment we wake up in

¹ Luis Roberto Barroso, 'Technological Revolution, Democratic Recession and Climate Change: The Limits of Law in a Changing World', Harvard Kennedy School, CARR Center for Human Rights Policy, *available at:* https://carcenter.hks.harvard.edu/files/cchr/files/ccdp_2019_009_technology_democracy.pdf (last visited May 25, 2023)

² S.L.Chetradevee, *et al.* Artificial Intelligence Technological Revolution in Education and Space for Next Generation. In: Sharma, H., Shrivastava, V., Kumari Bharti, K., Wang, L. (eds) Communication and Intelligent Systems . Lecture Notes in Networks and Systems, vol 461. Springer, Singapore(2022). *available at:* https://doi.org/10.1007/978-981-19-2130-8_30 (last visited May 26, 2023).

³ Alex Shashkevich, 'Stanford researcher examines earliest concepts of artificial intelligence, robots in ancient myths' *available at:* <https://news.stanford.edu/2019/02/28/ancient-myths-reveal-early-fantasies-artificial-life/> (last visited May 24, 2023).

⁴ While a number of definitions of artificial intelligence (AI) have surfaced over the last few decades, John McCarthy offers the following definition in this 2004 paper (PDF, 127 KB) (link resides outside IBM), " It is the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to methods that are biologically observable." *available at:* <https://www.ibm.com/topics/artificial-intelligence> (last visited May 26, 2023).

⁵ The term 'algorithm' refers to a collection of guidelines to be followed in computations or other problem solving procedures. This sums up the algorithm definition. It is also a process for handling a mathematical equation in several iterations , sometimes using recursive operations. It is often easy or complex, depending upon the nature of the problem. *available at:* <https://economictimes.indiatimes.com/definition/algorithm> (last visited May 24, 2023)

the morning. For example, type 'Latest TV' in Google and see. After that, no matter what website you go to, there will be advertisements for TVs. TV companies are seen greeting on social media as well. This is the result of artificial intelligence. The chess played on the computer, the weather alerts, and devices like Alexa... are all shreds of evidence of artificial intelligence. In the future, this artificial intelligence will expand more and more into our lives. In this paper, the words 'climate' and 'environment' can be used synonymously.

II

Belief-Artificial Intelligence

In many cases, it makes our lives more convenient. Interestingly artificial intelligence is also going to reduce human-caused damage to the environment. In some cases, even trying to fix it. Development has proved to be of some use to us. The weather is warming up. Greenery is thinning. Rivers are drying up and species are becoming extinct. All panchabhutas⁶ are getting polluted. There is a belief that the chance for man to correct his mistake has come through artificial intelligence. That belief is coming true to some extent. That opportunity is provided by 'artificial intelligence'. It has been observed that technological appliances⁷, tools, devices, and machines will take over the prospective future. The machines like drones will be operated to monitor the situation and carry out the operation as an ambush. The experts have expressed their disquiet about favoritism with respect to algorithms for finding out the accused and facial recognition. The situation may be abused affecting the interest of justice. It may reflect the different occasional forms of artificial intelligence. Initially the word 'Artificial Intelligence' was an indefinite term that was transformed later to assess the knowledge of humans and animals with a specific nature. Artificial Intelligence has different manifestations. Machine learning is a prominent technique adopted to create anticipations by using data portions and computing power.

Artificial intelligence holds many features of mankind. It possesses universal usage in Google searches like autonomous vehicles, e-commerce, digital advertising, and

⁶See, Both, the individual human body and the larger cosmic body, essentially, are made of five elements-earth, water, fire, air and space. In this, the first four elements are the active participants- space is the catalytic force. It is in the lap of this boundless space that these four elements play the game. So, the panchabhutas are the five elements of nature. Sadhuguru Jaggi Vasudev, 'Panch Bhutas': The five elements, 'Deccan Herald' March 28, 2015 *available at:* <https://www.deccanherald.com/content/468344/pancha-bhutas-five-elements.html> (last visited May 26, 2023).

⁷Germano Lambert-Torres, *et al.*, 'Advances in Technological Applications of Logical and intelligent Systems' page v, IOS press *available at:* <https://ebookcentral-proquest-com-christuniversity.knimbus.com/lib/christuniversity-ebooks/reader.action?docID=433439> (last visited May 26, 2023).

medicine. This technology had the same sort of impact leading to positive and negative results.⁸

The most intimidating problem in the world is climate change. Due to the evolution of time, the problem may become a more daunting task. The political fraternity may have to concentrate more on the problems faced by climate change. Those problems have to be included in their election manifesto too to achieve after forming the government. Accountability also plays a pivotal role that is above the political steps. Climate change with reference to artificial intelligence provides its own data and technical sphere. The application of AI will provide a solution to reduce GHGs to a certain extent.

Reduction of carbon emissions and scrutinizing its consequences are the global problems to be discussed with regard to climate change. Scholars around the world have found that the release of gases from industries increases GHG emissions. It can be pointed at this instance due to human-induced actions. From the above, it can be pointed out that the major reason for the unanticipated rise in global temperature.

The special report given by the United Nations Intergovernmental Panel on Climate Change (IPCC) noticed that limiting global warming to 1.5°C is necessary to reduce challenging impacts on ecosystems and human health and well-being.

To circumvent the acute results of a global temperature increase of 2 °C, the United Nations Intergovernmental Panel on Climate Change⁹ (IPCC) has announced that greenhouse-gas pollution must be reduced by 45% by 2030 and 100% by 2050¹⁰. Emissions cuts must be expeditious and widespread and need “unprecedented changes in all aspects of society”. The huge carbon emissions in the United States originate from the following: (a) Twenty-nine percent from transportation; (b) Twenty-eight percent from electricity; (c) Twenty-two percent from the industry; (d) Twelve percent from commercial and residential buildings; (e) Nine percent from agriculture. As the Ninth Circuit found¹¹, “overwhelming expert evidence establishes that this unprecedented increase stems from fossil fuel combustion and will wreak havoc on the Earth’s atmosphere if unchecked”. AI is ready to facilitate the challenges to address climate change. In the present-day scenario, Artificial intelligence has become a prevalent position. It started its journey in the year 1950 with some data scientists. Now, it has transformed into a quotidian term. Scholars have emphasized that AI term has become

⁸ Sunil Kumar, ‘Advantages and Disadvantages of Artificial Intelligence’ November 25, 2019 *available at:* <https://towardsdatascience.com/advantages-and-disadvantages-of-artificial-intelligence-182a5ef6588c> (last visited May 25, 2023)

⁹ ‘Summary for Policymakers of IPCC Special Report on Global Warming of 1.5°C approved by governments’ October 8, 2018, *available at:* <https://www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/> (last visited May 27, 2023)

¹⁰ For a livable climate: Net-zero commitments must be backed by credible action, United Nations: Climate Action *available at:* <https://www.un.org/en/climatechange/net-zero-coalition> (last visited May 27, 2023).

¹¹ Amy L. Stein, Artificial Intelligence and Climate Change, *available at:* <https://core.ac.uk/download/pdf/344966554.pdf> (last visited May 27, 2023).

mundane and may be interpreted in different aspects suiting the situation. This paper also covers the short statement of AI with a few specimens to reduce irreparable environmental damage.

III

Global Warming

The term 'Global Warming' is not something new. Floods, droughts, submergence of coastal areas, and increasing deserts are some of the challenging problems due to global warming. All together are making humans miserable. That is why the 'Paris Agreement' aims to reduce global warming to an average of two degrees by the end of this century. But, it is not an easy process to reduce as aimed above. Industrialization is increasing day by day. Deforestation has been continuing. There is no need to mention chemical waste specifically. No matter how looks at it, it's bad luck. It is presumed that 'Artificial Intelligence' may play a vital role in this context. The percentage of water evaporation, the melting of glaciers, the moisture in the soil... all these can be calculated from time to time and the future can be predicted. Clear warnings can also be issued through these predictions. For example, if we say, 'Your city has a lot of pollution', no one may respond. But, if the pollution like this, your city will be flooded in November 2025. If you can say that 'the unbearable sun will burn your city in 2027' ... surely you will get a different response. Artificial intelligence can accurately analyze weather data records for hundreds of years. The future can be predicted accordingly.

IV

Microsoft-AI for Earth

If we want to know how useful artificial intelligence is for the environment, we should talk about the project called AI for Earth started by Microsoft. Satya Nadella, the head of the company, has already announced that Microsoft will allocate one hundred million dollars to reduce carbon emissions on Earth. Part of that is AI for Earth¹². For this project, Microsoft released several technologies to help environmentalists. It has brought conveniences like 'Land Cover Mapping' to record the surface of the earth, 'Species Classification' to identify species, and 'Camera Trap' to compare each animal separately. It has made a cloud server called "Azure" available for environmentalists to store their data safely. Not only that, more than 20 animals caught in cameras can be identified differently through Microsoft's 'Zamba Cloud¹³' technology. It is not difficult to place cameras in forest areas. But, in thousands of hours of continuously recorded footage, how can human beings sense where the animals are? For that, precious efforts

¹² Microsoft AI, available at: <https://www.microsoft.com/en-us/ai/ai-for-earth> (last visited May 27, 2023).

¹³ Zamba Cloud, Microsoft AI available at: <https://www.microsoft.com/en-us/ai/ai-for-earth-zamba-cloud> (last visited May 26, 2023).

have to be wasted. This Zamba Cloud does the same work through AI. Also, an organization called 'BasinScout' is working on the availability of water resources.

V

Other Research Methods

(a) The term 'bioblitz'¹⁴ is nothing new to environmentalists. 'Bioblitz' is a research method where we observe the environment around us, record the species found in it, share those details with peers, and learn about their peculiarities from scientists. This process, which started almost decades ago, has been very useful for scientists. In this journey of scientists and enthusiasts together, enthusiasts get a chance to know how rare the living species around them are. This artificial intelligence also reduces the time and effort that scientists have to devote. AI is now assisting these efforts.

(b). 'iNaturalist'¹⁵ is a great example of that. This is the idea that three students from the University of California came up with five years ago. Anyone can upload their wildlife sightings to this website. The information can be obtained from the wildlife on the website. If it is a rare creature, another enthusiast may come forward to research it. Not only that, the scenes of animals dying in road accidents and hunting stray wild animals can also be captured on cameras and brought to the attention of environmentalists. This type of information can also help to generate rare statistics and alert governments. In just three years, 'iNaturalist' has achieved incredible success. More than three and a half crore people have joined it as members. More than six crore views have been shared. 32 lakh species have been identified through these. In most cases, the website can provide information about the creature when the members upload the footage. Because it works so effectively, organizations like National Geographic and United Nations join hands with this group.

(c). Not only that! Do you remember the recent 'Pokemon Go'? This game is about finding where the 'Pokemon'¹⁶ character is in the surroundings around us. There have been many criticisms that children lose their concentration with this game and do not pay attention to their surroundings. But, 'iNaturalist' has created a similar game for the environment. The purpose of this game is to capture the living species near on camera and learn details about them through the game 'seek'. While a game using artificial intelligence has been criticized. 'Seek' is using the same technology to give children a better understanding of the environment.

¹⁴ Bioblitz, Resource, Education, National Geographic *available at*: <https://education.nationalgeographic.org/resource/bioblitz/> (last visited May 28, 2023)

¹⁵ Shem Unger, *et al.*, 'iNaturalist as an engaging tool for identifying organisms in outdoor activities' *available at*: <https://doi.org/10.1080/00219266.2020.1739114> (last visited May 27, 2023).

¹⁶ Pokemon Go, *available at*: <https://pokemongolive.com/?hl=en> (last visited May 26, 2023).

VI

Mathematical Approach

The idea of having a machine do what we want has been around for thousands of years. Based on such imaginations, our ancestors created machines like birds that fly with steam, duck dolls that flap their wings when given a key, and clocks that move with a pendulum. By the 20th century, these assumptions were supplemented by mathematics. Mathematics proofs of theorems give the same result any number of times. It was proved by Alan Turing's 'Turning Machine'! Artificial Intelligence was developed based on mathematics. It should be remembered on this occasion that even the computer which is a part of our lives today works only on the basis of two digits namely 0 and 1. So adding technology to the imagination, robots were created. From helping man in work, robots have been developed to do all the things that man can do. According to the theory of 'Moore's Law', by 2045 even the computers available to us will be able to perform analysis as powerfully as humans. Just as humans assess the environment through their senses, robots can also assess things like sound, sight, and heat through different sensors and act accordingly. This technique is called 'Machine Perception'.

VII

Filtering the Sea

A report shows that 90 lakh tons of plastic waste enter the sea waters every year. The sea is getting polluted due to the chemicals released from it. Plastic that breaks down into small pieces in water is becoming deadly to millions of marine life. This situation is so bad that it is estimated that most of the baby turtles have pieces of plastic in their stomachs. An organization called 'Ocean Cleanup'¹⁷ is working to correct this situation. But collecting the pieces of plastic floating in the oceans is not that easy. For this, Microsoft Technology¹⁸ has joined the Ocean Cleanup organization. All the plastic that ends up in the oceans comes from rivers. It should be intercepted at the right time. But how! This is where AI comes in handy. Due to the winds that blow over the rivers, all the waste flows in one direction. Predicting where the winds are blowing and confirming that what floats on the river is garbage. Ocean Cleanup vehicles that reach the area collect the waste before it reaches the sea.

¹⁷ The largest Cleanup in History, Ocean Cleanup, *available at:* <https://theoceancleanup.com/> (last visited May 26, 2023).

¹⁸ Suzanne Choney, Microsoft Hackathon leads to AI and sustainability collaboration to rid plastic from rivers and the ocean, *available at:* <https://news.microsoft.com/source/features/sustainability/microsoft-hackathon-leads-to-ai-and-sustainability-collaboration-to-rid-plastic-from-rivers-and-the-ocean/> (last visited May 26, 2023).

VIII

Working together

An old man is doing research on the subject of ‘floating gardens in the sea’. For that, he collected millions of satellite images of the oceans. But, it is not so easy to examine all these. This is where a technology called ‘Juniverse’ comes in handy. So, if that person puts his project on this website, lakhs of volunteers will be ready to help. He analyzes the pictures nearby and provides the information they need. From uploading a project to aggregating tons of information, AI helps. 350 projects have been successfully implemented through Juniorverse which Juniverse jointly initiated.

IX

Protecting the Soil

Earth is equal to Mother. Even if it provides shade or food, survival is only if the soil is good. But, the excessive use of chemicals and the desire for higher yields are draining the soil. Besides, there is the hand of pollution anyway. Efforts are being made to increase soil fertility and crop yield with the help of AI. For example, PEAT, a Berlin-based company, has introduced a technology called Plantix¹⁹. It detects soil mineral deficiencies and local pests early. Companies like FarmShots²⁰ have gone even further and with the help of satellites can even sense when the right rain falls on the fields. The ‘Robot Lettuce²¹’ machine detects where the weeds are with its camera and pulls them, and the ‘Sea Spray’ technology sees where the plants are and sprinkle more nutrients. This new method of using rainwater cleanly, planting crops suitable for the soil, using fewer chemicals, and eliminating wastage everywhere has the potential to get higher yields while taking care of mother soil. Nature will be preserved.

X

Power, Energy, Transportation, and other Supplemental Sectors

(a) Power Grids: Adding AI to power grids that provide thousands of kilowatts of electricity can save electricity by providing electricity according to usage and spotting wastage. Saving electricity means saving valuable resources! AI can also predict fluctuations in power consumption by accurately predicting the weather.

¹⁹ Your crop Doctor, Plantix, *available at:* <https://plantix.net/en/> (last visited May 26, 2023).

²⁰ ‘FarmShots Makes Detecting Production Issues Easier’, *available at:* <https://www.syngenta-us.com/thrive/production/farmshots-detecting-production-issues.html> (last visited May 25, 2023).

²¹J.Blasco, *et al.*, ‘AE-Automation and Emerging Technologies: Robotic Weed Control using Machine Vision’ Elsevier, Biosystems Engineering, Volume 83, Issue 2 *available at:* <https://doi.org/10.1006/bioe.2002.0109> (last visited May 25, 2023).

(b) Transportation: There is a lot of traffic in certain places. There are already warnings like 'stop' for a while and leave' and 'turn right and you will reach your quickly' through different apps. If artificial intelligence can be fully harnessed, unmanned vehicles, traffic-adaptive journeys, and transportation through drones are possible. The environment also benefits.

(c) Product:

Artificial Intelligence is already being used at every stage of the production of goods through the process called IoT (Internet of Things). In addition to this, innovations like 'Drishti' are also preventing valuable resources from being wasted in the production process²². Prasad Akella founded this company. This company also observes atomization in production. It shows where the waste is happening.

(d) Computers:

Powerful servers generate tremendous heat. Refrigeration machines must be used to control those temperatures. Through artificial intelligence, cooling can be adjusted according to the performance of the servers. Google is able to save 35 percent of electricity in its data centers through this technology. This also seems to solve many problems.

XI

Conclusion and Suggestions

AI has the potential to prevent the wastage of resources at every turn of our daily routine. For example, by observing how many people are in the room the technology to provide light and heat accordingly is possible only with artificial intelligence. No matter how useful artificial intelligence is, it is still imperfect. For now, we have to accept this. Through AI, we can tell the machines what to do, when and how to do it. But, they are not able to make a rational decision. Imagine creating a gigantic computer with the mandate to 'reduce carbon emissions at all costs'. That is the reason, it is alarmingly foremost to at least start lucid intellectual cut up if not lucid statements or expressions between the three concepts. Those concepts were related to AI, machine learning, and data analytics. The above three concepts need big data to be efficacious, these can be considered as fixed, but have distinct concepts. The changes in the climate have become a more serious threat that is more intense and uncertain in the present world. The Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC)²³, "Climate Change 2022: Impacts, Adaptation, and Vulnerability", have cautioned of climbed dangers to the lives of livelihoods of people.

²² Varsha Meghani, When man meets machine: Using AI to improve productivity of factory workers, November 3, 2021 *available at:* <https://www.forbesindia.com/article/innovation-nation-2021/when-man-meets-machine-using-ai-to-improve-productivity-of-factory-workers/71353/1> (last visited May 25, 2023).

²³ Sixth Assessment Report, *available at:* <https://www.ipcc.ch/assessment-report/ar6/> (last visited May 28, 2023).

It has been noted that AI can start to be thought of as “a set of technologies intended to approximate some aspect of human or animal cognition using machines”.

Due to being completely absorbed in the concept of AI, humans are not able to understand fully the working of self-knowledge. Due to the application of human cognition may become effortless to identify AI's hallucinatory state. It may be evident to understand how AI is again and again demonstrated by showing illustrations. Those illustrative cases are problem-solving, natural language processing, and speech or facial recognition. The above-mentioned illustrative cases are attenuated and disjunct in nature when contrasted with the extensive dimensions.

Steps should be taken to reduce the repercussions of climate change with the usage of AI. The application of artificial intelligence gains prominence in many of the strategies and technologies being traversed to mark the intricate issue of climate change.

The report published by the Center for Study of Science, Technology, and Policy²⁴ (CSTEP) looked into the placement of AI tools and applications for climate change mitigation and adaptation in India. This report also suggested operative submissions for clearing the way and allowing the work of AI to oversee climate change in the country. Eighty percent of the population dwelling in districts is immensely vulnerable to intense hydrometer disasters. It can be noted that India's amenability to climate change is acute. The country's development is complexly associated with climate perils leading to investment efforts and sustainable development.

AI is a dominant instrument that can identify the questions caused by climate change. There are four indispensable roles that AI can provide in helping climate change adaptation and mitigation efforts. Those are simplifying complex systems, simulations and advanced scientific modeling, prediction, forecasting, and big and raw data analysis. The traffic situation in Indian cities has deplorable in nature. This traffic situation leads to an escalation in the intensity and continuation of traffic congestion increasing GHG²⁵ emissions. An increase in vehicle registrations obviously leads to traffic congestion. The above study mentioned that road widening is not the permanent solution but policy should be framed with more governmental intercession. It is the need of the hour.

The study also covered that AI can be an instrument to tackle the intelligent traffic signal system. This traffic signal system locates vehicle movement and information. It is essential to only register vehicles as per the norms. It can be constructive in the environment and protective and preservative of energy.

²⁴ Essence, available at:<https://www.cstep.in/about.php> (last visited May 28, 2023).

²⁵ ‘Artificial Intelligence Applications in Reduction of Carbon Emissions: Step Towards Sustainable Environment’ available at:<https://www.frontiersin.org/research-topics/40836/artificial-intelligence-applications-in-reduction-of-carbon-emissions-step-towards-sustainable-environment> (last visited May 27, 2023).

Modal shift, transition to clean transport, process optimization, and demand management are specific essential suggestions from the study to decrease the climate change impact due to transportation. Due to the advancement of technology, it has become a reality for the start-up of smart buildings. These sorts of smart buildings are equipped with adequate AI facilities controlling and regulating energy consumption, renewable energy positioning, and other allied areas. AI also makes it easy to utilize electrical devices to save power. This kind of technological advancement aids in expediting decarbonization and mitigating the results of greenhouse gases emission at all levels.

Data generation is very much needed due to the change of the digital ecosystem in the expedited phase in India. AI has secured a remarkable position in providing quick solutions to private and public organizations, state governments, union territories, central government, and other established authorities in India in initiating accountability, decision-making and to take action concerning climate change to facilitate a better future. The legislators, scholars, and scientists have evolved reduction and modification strategies. These strategies have approval from the political hierarchy. However, more work has yet to be done. Humans who inhale oxygen and release carbon dioxide can also be seen as their enemies. That is why it is suggested by scientists to be more alert in designing algorithms and making decisions. If this bit of care is taken over hundreds of years, man's hand to nature can be corrected in a few decades.