

A Review on Advancing Environmental Sustainability Through Technology

Rekha Trivedi*

Department of Applied chemistry, Shri Shankaracharya Technical Campus Bhilai (Chhattisgarh), India

***Corresponding author:** Rekha Trivedi, Department of Applied chemistry, Shri Shankaracharya Technical Campus Bhilai (Chhattisgarh), 490020, India

ARTICLE INFO

Received: 📅 July 29, 2025

Published: 📅 August 25, 2025

Citation: Rekha Trivedi. A Review on Advancing Environmental Sustainability Through Technology. Biomed J Sci & Tech Res 63(1)-2025. BJSTR. MS.ID.009836.

ABSTRACT

Industrialization issues lead to the various international's current environmental issues be keen on climate exchange, unsafe levels of air pollution, the depletion of fishing shares, pollution in rivers and soils, overflowing ranges of waste on land and within the ocean, loss of biodiversity and others. Even as we speak about technical sustainability Artificial Intelligence (AI), new medical technology, green cloud, green computing or green statistics center and so on. They could be very crucial standards. By using the resource-based views of the theoretical foundation, the manuscript discussed an incorporated sustainability via new generation technology. Aside the fantastic dynamics, certain difficulties want to be addressed, so that sustainable built surroundings should flourish. The thing affords some answers as to how it's miles possible through corporations and technological abilities to result in a shift into a brand new technological company—emphasizing the significance of new technology into available expertise that may be used, and in future expectations.

Keywords: Green Technology; Sustainability; Digital Technology; AI (Artificial Intelligence)

Introduction

New technologies are allowing communal shifts through having an impact on economics, values, identities and potential for future generations. The commercial revolution, technological tendencies, innovations are becoming faster and also becoming an increasing number of connected with environmental deterioration; specially we are seeing a merging of digital, physical and organic and biological realms. Sustainability has an increasing number of emerge as essential after rapid depletion of green resources and concerns over wealth disparity and social duty companies. The concept of sustainable improvement obtained its first important worldwide recognition in 1972 on the UN conference at the Human surroundings held in Stockholm. The term was not referred to actually, however the international community agreed to the belief - now essential to sustainable development - that both development and the surroundings. The 'classic' definition of sustainable development: "development which meets the wishes of the existing without compromising the capability of future generations to meet their very own requirements". Now a days, sustainable dwelling and development create an enormous project. We are facing masses of environmental problems every day. If right action isn't tak-

en, CO2 emissions from us are projected to reach 4,807 million metric lots by way of 2050. That's enough to get every person concerned, including business owners and most important industry players.

We may not be aware however statistics facilities are tremendous customers of strength, truly accounting for a huge 2% of total global strength use with a robust prediction of growth to 4.5% in 2025. Therefore to undertake as no physical servers and statistics centers are needed. In line with Ovo energy, if every e mail user in the United Kingdom dispatched one less email an afternoon we might store 16,433 tones of carbon in a year, its miles clear that we need to take our obligation, as customers however most importantly as groups. The peoples need to stick inside the religion that for sustainable surroundings wishes to be coproduced through near collaboration among pupils and practitioners. The research and applications software that has all started to emerge from those preparations has been referred to as —sustainability technology, with the aid of the national studies Council (countrywide studies Council 1999). Early research on sustainable yield management of renewable sources provided the muse for the global Union for the Conservation of Nature's seminal world approach, published in 1980. Promoted by way of the Brundt

and commission's record *Our common future* in 1987, and enshrined within the schedule 21 movement plan that emerged from the United countries conference on surroundings and development in 1992 held in Rio de Janeiro marked the first global try to draw up movement plans and strategies for transferring toward a greater sustainable pattern of development attended through over a hundred Heads of nation and representatives from 178 countrywide governments and representatives of other corporations representing civil society.

Over the following decade, the communiqué of ways sustainability and era could make contributions greater successfully to sustainability intensified, related to numerous researchers, practitioners, scientific academies, and improvement groups round the arena. A Summit on Sustainable improvement, organized in Johannesburg in 2002, a commonly primarily based agreement had begun to take shape on the almost all sizeable methods where in S&T has already contributed to sustainability, on what new R&D is most essential, and on what stands inside the way of getting it accomplished (Clark, et al. [1], Inter Academy Panel on worldwide issues 2000, worldwide Institute for surroundings and development 2002, Larigauderie A [2], international Council for science 2002, international Council for technology file, 2002 a, 2002 b, Ruttan V W [3]). Many of the valued contributions of S&T to sustainable development predate the time period itself. These range from the yield-improving, land-saving accomplishments of the global agricultural research gadget (Glacken C [4]), routine technologies, simple needs for hygiene and cooking through the essential scholarship of geographers and anthropologists on nature-society interactions (Haefele W, et al. [5,6]). The potential of applicable R&D now on the shift round the arena is recommended by using the rapidly growing list of entries at the virtual discussion board on science and technology for Sustainability (countrywide studies Council 1999). However, plenty stays to be accomplished.

This means bringing S&T to stand on the very best-precedence dreams of a sustainability transition, with the ones desires defined no longer with the aid of scientists by myself but as an alternative thru a conversation between scientists and the human beings engaged inside the implement of meeting human wishes at the same time as maintaining the earth's life assist systems and reducing hunger and poverty (United nations world Summit on Sustainable development [7]). During Johannesburg Summit, goals for water, energy, health, agriculture, and biodiversity (WEHAB) (United countries preferred meeting 2000, Parris T M, et al. [8]). A systematic observation was carried out across the world of the state that one's provided with the aid of Parris and Kates of their contribution to this unique function. As important as this worldwide concord on goals and targets may be for concentrated on problem-driven studies in support of a sustainability transition, still, it isn't sufficient. A joint workshop held by means of the international Council for Sciences, the third world Academy of technology, and the Initiative on science and technology for Sustainability concluded that time table putting at the worldwide,

continental, and even countrywide scale. Where in such systems exist, the manufacturing of usable, location-primarily based knowledge for selling sustainability has been remarkable certainly. The dedication of sustainability technological know-how to trouble-driven schedule setting does no longer suggest that it has been constrained to applied research.

Simply, pursuit of realistic solutions to the burning challenges of sustainability has driven the field to tackle an array of essential questions. The Friibergh Workshop on Sustainability technology (Kates, et al. [9]) recognized a half of-dozen such core conceptual questions which have been further advanced thru the virtual discussion board on technological know-how and era for Sustainability (Initiative on science and technology for Sustainability [10,11]) and are graduation to seem inside the framework of emerging agendas in different more conventional fields, together with global environmental alternate (Kates R W, et al. [12]). The new types of studies in this special characteristic: Kates and Parris (Turner, et al [13]) on how the long-term tendencies in environment and development reshaping nature society interactions in methods applicable to sustainability; (Turner, et al. [14,15]) on What determines the vulnerability or flexibility of the nature-society systems mainly styles of places and for particular kinds of ecosystems and human livelihoods? And how can today's tremendously independent sports of research preparation, surveillance, assessment, and end guide be higher included into systems for adaptive management and societal studying? (cash, et al. [11,15]).

The sustainable technology application is also commencing via H. J. Schellnhuber and his colleagues on the Potsdam Institute for climate effect studies have evolved progressive new solutions to the query —How can the dynamic interactions between nature and society—which includes lags and inertia be higher blanketed in rising models and conceptualizations that integrate the Earth device, human development, and sustainability? Wolfgang Lucht, lettering inside the IHDP regulate, summarizes new work on answering. How can modern-day operational systems for monitoring and reporting on environmental and social conditions be included or extended to provide extra beneficial supervision for efforts to map examine a transition toward sustainability? (Initiative on science and technology for Sustainability [10]) and a number of groups are undertaking for reconsideration of national and global social account movements to include sustainability concerns. One of the more up to date lists of programs and initiatives is maintained at the forum on technological know-how and generation for Sustainability (United countries world Summit on Sustainable improvement 2003). As an offer of the range of sports underway the world over, the worldwide Council for science, third world Academy of Sciences, Initiative on science and generation for Sustainability, and different agencies have fashioned an association for selling a coordinated worldwide application of studies, capability constructing, and packages [16-25].

The Earth system technology Partnership of the global Environmental trade Programmers has launched a sequence of Joint tasks on Sustainability alert on issues of food protection, water, and carbon control. Increasingly worldwide technological know-how checks for environmental protection (e.g., the Intergovernmental Panel on climate change and Millennium surroundings checks) are incorporating sustainability worries. And a swiftly increasing set of multi stake holder Partnerships for Sustainable improvement are growing in the wake of the Johannesburg Summit. The research merchandise of some of these efforts is starting to seem within the posted literature, despite the fact that a few of the pretty neighborhood consequences continue to be largely unknown beyond their places of beginning and application. However, as a evaluation paper here inclusive of special feature is meant to signify, something exclusive is sincerely in the global environment, something this is intellectually thrilling, nearly compelling, and might as nicely be called sustainability via generation. Obviously, we want a quick solution. Some of the methods, organizations and individuals have started to take on in climate trade is thru the usage of

- Sustainable technology
- Green technology
- Digital or virtual sustainability

Sustainable Technology

Sustainable technology is an umbrella that describes innovation and considers natural resources and fosters monetary and social improvement. It has already made its way into public use and innovation. It is able to be distinct in some customs:

Substitution

The generation fosters a shift from non-biodegradable to biodegradable materials in its production and also replaces non-renewable with renewable assets.

Prevention

The sustainable technology prevents deterioration, contamination, and other poor environmental affects thru its use or manufacturing.

Efficiency

The technology is efficient in phrases of its use of energy and resources. An increasing number of innovators and organizations are pushing for green technology visualizing and sustainable innovations. Some common examples of sustainable Technology and improvements:

- Public and electric powered delivery
- LED light generation
- Sun power
- Carbon seize and storage technology

- Self-sufficient and LEED homes and production methods

Why Sustainable Generation is Good for Business and for our Future?

Sustainable environmental technology has the potential to transform the style of working and can change how agencies and public systems do their job. Sustainable generation can decrease any terrible social and environmental influences, which is right for a commercial enterprise's bottom line, and its recognition. Via imposing sustainable innovations, businesses can maintain feasible and help to make the nature pleasant environment. We'll go into the depth to understand, why our business should put into action with sustainable technology.

Reduce Risk and Improve Project Outcomes

Sustainable technology helps our business reduce risk. When we use the renewable and biodegradable materials, we're protecting the ecosystem and our business from the negative effects of climate change indirectly with sustainable tech and less disposable materials our business will become desirable for investment.

Improve our Bottom Line

With sustainable technology we are able to employ sources successfully in our commercial enterprise. This goes an absolute manner in boosting our bottom line.

Appeal to and Retain Top Expertise

The key to acquiring the nice skills is to put in force sustainable technology for our business. Sustainability in generation shouldn't be a luxurious. It's a necessity. No longer has a day passed for us without seeing the many ways in which digital technology can strengthen peace, human rights and sustainable development for all.

Green Technologies

Green technologies offerings the improvement in the high-quality of environment and noise associated problems. They vary from extremely complex and costly bigger invention (high-tech) to greater easy answers.

The green technology is on the rise now, going neck and neck with an uptick of novel virtual transformation. In current years there has been fiery growth in attempting to combine virtual generation and sustainability. In modern time green technology is redefining sustainability in every viable manner. With the effective implementation of these innovations, it will likely be simpler to sustain our endangered environment to an exceptional extent. Here are some of the examples of sustainable improvements that includes in green technology.

Toilet to Truck Technology

In a try to reduce the effect of greenhouse gasoline, a selected Scandinavian town has become to the sewage device and human

waste for the solution. To grow Smarter assignment is a Stockholm-based totally initiative that ambitions to provide bio-fuel for motorcycles from family waste. To initiate this work, the metropolis is

making plans to put in superior gadgets and machines that flip family waste to gas Figure 1.



Figure 1: Toiletto Truck Technology.

Long Light Bulb

To say that light bulbs are a necessity would be undermining it. Now, the normal bulbs burn out faster and they grow to be locating an area within the non-biodegradable accumulation. Considering all

the ones, the Dyson business enterprise has started generating light bulbs that promise to final for 37 years. Instead of the usual round heat sink, the Dyson light bulb employs a horizontal warmness pipe to make the light bulb remaining longer. Figure 2.



Figure 2: The Long-Lasting Light bulb.

Wooden Laptop Chips

Computer chips are created by metals normally, which might also seem all proper when at use. However as soon as it's far disposed

of, are tough to recycle. As a manner out, the university of Wisconsin-Madison created laptop chips from epoxy-coated cellulose nanofibril. The cloth protects the chip from attracting moisture (something this is common to wooden things).

Electric Aircrafts

Air tour is stated to produce nearly 780 million lots of carbon emissions each year. This discerns has triggered many innovators

to look for possible solutions, which incorporates the united states-based totally startup Wright electric powered. This startup is operating towards building a 150-seater plane which could fly three hundred miles with the assist of natural energy. Figure 3.



Figure 3: Electric Aircrafts.

Wave Carpet

Researchers pass on that marine electricity is capable of supplying for 1/2 of the USA's electrical requirements. Theoretical and Fluid Dynamics Laboratory at the college of California, Berkeley, has investigated a mud-corresponding to artificial compliant seabed carpet (Wave Carpet), composed of linear springs and mills that can be used as a green wave electricity conversion tool. It has a theoretical efficiency of solidarity and a large bandwidth of excessive overall performance. It is also Omni directional, and since it sits below the water surface it's far enormously survivable towards the excessive momentum of hurricane waves, while at the same time poses minimum chance to the sea life in addition to minimal visual pollution. They

offered a fundamental analytical version, improvement and optimization of a scaled prototype for the wave tank test, and the experimental effects and discussions. Experimental results definitely advocate the wave carpet's capability to soak up and convert wave strength successfully in exclusive wave situations. Wave Carpet is assessed as a submerged stress-differential wave energy converter (Marcus et al. 2014). This carpet motivated by means of the herbal phenomenon of robust attenuation of oceanic surface waves with the aid of muddy seafloors, growing and falling alongside the waves that originate hydraulic power. This in the end will become energy. Figure 4. Source: <https://taflab.berkeley.edu/uc-berkeley-ocean-wave-power-converter/>

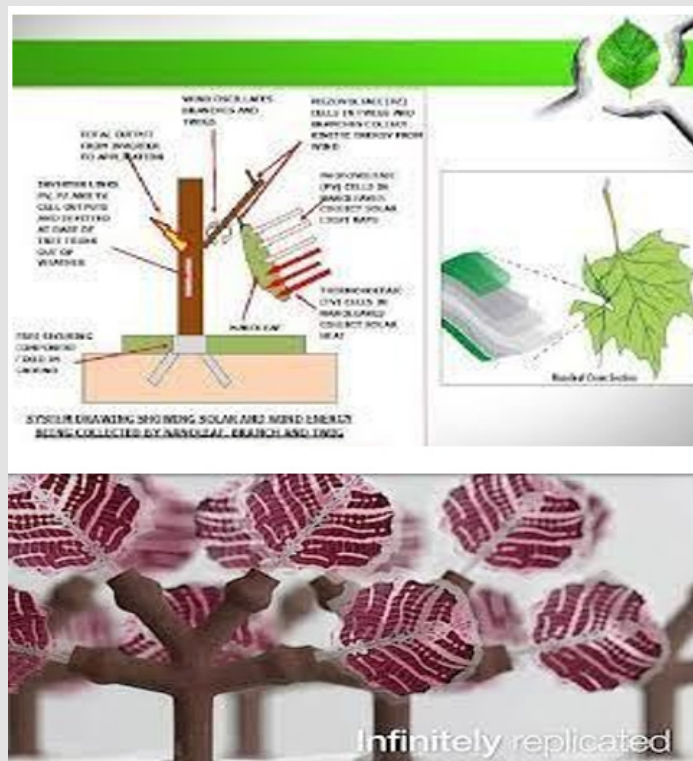


Figure 4: Wave Carpet.

Harvest's Sun Leaves

This cutting-edge innovation inside the domain of green technology comes from a thirteen-year vintage named Maanasa Mendu. Maanasa has advanced an electricity tool known as HARVEST which

could generate clean power at the value of \$5. The mechanism of HARVEST involves a sun leaf that harnesses energy from the sun and vibrations. Harvest is made from piezoelectric substances, which makes the electricity technology viable. Figure 5.



Note: Solar power from energy harvesting.

Figure 5: Harvest's solar leaves.

Digital Sustainability

The idea is described as a set of ecologically secure with strong factors and ideas that confer with the lengthy-term angle for social and financial development. Those projects can satisfy virtual generation implementation.

How digital traits effect sustainable era enlargement with the help of several technologies, Such as:

- Nanotechnology,
- Facts analytics,
- Block chain,
- AI,
- ML,
- Internet of things,
- Huge statistics,

- Side computing,
- Robot manner automation,

And many mores come to easiness our lives moreover artificial intelligence (AI) has been the important thing to complicated records analysis and control aimed toward sustainable selection making in numerous critical fields inclusive of weather trade, air, and water protection, biodiversity conservation, disaster plasticity etc. Meanwhile clever networks and connectivity are anticipated to facilitate improved strength management and less waste generation. In favor of sustainability the top ten technologies which are identified inside the studies by way of diverse elements of the world are:

- Block chain structures that allow energy sharing consisting of Germany's OLI has advanced;
- Renewable power-powered block chain computing facilities like that from Soluna;

- Peer-to-peer solar energy sharing systems that extend smooth energy to remote areas like that of Bangladesh-primarily based SOL-proportion;
- A waste warmth restoration gadget that recycles industrial by products right into a fee brought carbon-loose power source from the UAE's Ceramic;
- A 3-D printable solid-country battery powered via vegetable oil that has capacity packages in strength garage from Berekotry Ltd;
- A form of char crafted from biomass which can lessen the greenhouse gasoline emissions of coal-fired electricity plants from Agri-Tech producers;
- Green briquettes crafted from biomass that reduce the felling of timber and reliance on dirty coal such as that created by way of Kenya's Kayole surroundings control company;
- A virtual truth gadget that inspires greater sustainable conduct from new york's assume design;
- A city water fountain that saves water and avoids the use of tens of millions of plastic bottles from pro Aqua institution;
- Environmentally-pleasant paints that shield surfaces and enhance energy efficiencies such as the ones from zero-VOC (Volatile Organic compounds) (unstable natural Compounds).

Masdar, Abu Dhabi's future energy organization, in partnership with The national newspaper and the world destiny electricity Summit at Abu Dhabi Sustainability Week (ADSW) has released a new record. The document tested key technological improvements so that it will enhance sustainability throughout six sectors defined as change in weather, water, mobility, biotechnology, space, and generation for goods. These consist of carbon seize and power storage, renewable electricity-powered seawater desalination, electric and autonomous motors, nanofabrication and superior production, gene editing, biofuels, robotics and complex software program structures. The previous couple of decades have visible splendid acceleration in innovative era and deployment; however it's far the modern junction of those technologies that may definitely rework our future. The transformation will now not occur robotically. It will require proactive collaboration between policymakers, scientists, civil society, era champions and traders. In step with Sadhika Kumar – top 11 green technologies that give us wish for a sustainable future:

Green Structure

Green structure has the capability to reduce down urban resource use dramatically, and making urban expansion sustainable. It allows for homes to be built in a way, that they employ present natural light and ensure good enough insulation, which will lessen strength consumption and decrease the quantity of heat lost to the outside, take away the wish for heating. Furthermore, the construction substances

will be sourced from city waste and landfills.

Waste-Water Electricity Generator

Engineers at Oregon Kingdom College have invented a waste water primarily based hybrid electricity-generator. They were capable of integrate two distinct energy era technologies – microbial gas cells and opposite electro dialysis, to supply a machine that uses waste water to supply energy. The generator has the capacity to produce enough energy to not most effective electricity water remedy, but also appreciably contribute to the main electricity grid. As such, while scaled up, this technology will shape the premise of electricity-water sustainability, that's vital with the escalating scarcity of natural resources. To examine approximately waste-water energy generator: <http://oregonstate.edu/ua/ncs/documents/2012/aug/important-boost-made-generating-power-wastewater>

New Nuclear Material

Nuclear energy has huge ability, but because of the risks associated with radioactive waste. Presently, Uranium nuclear strength reactors use best 1% of the capacity strength available in Uranium, and the relaxation remains as radioactive waste. However, other materials together with Thorium exist, that may replace Uranium and permit nuclear strength to reach its capacity. There's less waste associated with Thorium based fission, as all the thorium mined is in the isotopic form wanted for the reactor. Moreover, thorium is likewise greater ample in earth's crust. The purpose why it has no longer replaced uranium is value. But, R&D in this sector is gathering momentum, and scientists are hopeful that the generation will become fee-effective inside the near destiny. Can examine extra approximately Thorium sourced nuclear electricity: <http://net.mit.edu/12.000/www/m2016/finalwebsite/solutions/fission.html>

Waste-Sourced Biofuel/Pyrolysis

The smarter and secure way to recycle our trash is to transform them into biofuels. Through this age we now able to show biomass waste including paper, grass or wooden chips into fuel and eventually ethanol and have a smaller carbon footprint than conventional ethanol production. Several pilots are to be released soon within the United Kingdom, Canada and Australia with companies constructing standardized, easy to install vegetation to be able to ultimately allow municipalities around the world to begin turning garbage into purifier biofuel. Pyrolysis lets in for offsetting some of the carbon release allied with agriculture. Thru pyrolysis biomass are transformed into an intermediate liquid product that can be refined to drop-in hydrocarbon biofuels, oxygenated gas additives and petrochemical replacements. If agricultural residue is burnt in a managed, low-oxygen environment, then not best are we able to reduce greenhouse fuel emissions, but it consequences in an give up made from charcoal. The potential of this era is very huge. Can study more: <http://pacificpyrolysis.com/about.html>

Biomimicry

Biomimicry has given the rise to self-recovery substances. These substances could have the functionality to—heal themselves whilst cut, torn or cracked. This in turn will give longer lives to most consumer goods, and thereby reducing the call for uncooked materials and waste. Can study greater: <http://www.wasknature.org/product>

Electric Cars

No communicate regarding green technology is complete missing the point out of electric motors. All electric vehicles will come installed with gadgets in order to be capable of acquire strength remotely through an electromagnetic area broadcast from cables set up beneath the street (presently current process road exams in South Korea, and their manufacturing will truly adjust a number of the perceptions associated with electric cars). Can examine greater: <http://spectrum.ieee.org/inexperienced-tech/advanced-motors/the-al-lelectric-automobile-you-by-no-means-plug-in>

Carbon Capture

Carbon seize (storing carbon underground) has immediate attraction have constantly been uncertainties related to this system along with dangers with garage and leaks. For this two new molecules have been diagnosed to be able to assist to make carbon capture greater safe, efficient and value-effective.

ZIFs and Amines

ZIFs and amines are two special cage-like molecules which have been proven to work underneath actual international situations, and strategies have additionally been put in region that will permit for instant duplication of those molecules. ZIFs: <http://www.energy-boom.com/rising/uclas-zif-carbon-capture-crystals-smoke-stacks-first-class-friend/> Amines: http://net.anl.gov/computers/acsfuel/preprintp.c20archive/files/47_1_Orlando_03-02_0012.pdf <https://doi.org/10.1016/j.%2012.03.003>

Molten Salt Storage

Molten salt is utilized in sun strength manufacturing that can be beneficial in storing strength for future use. The surplus warmth at some point of the day may be used to heat massive amounts of salt, which has the capacity to soak up and save enormous amounts of warmth. This salt can then be used to technology of steam, and run an electric turbine inside the absence of the sun, and making solar power a greater possible selection for changing non-renewable to renewable. Source: http://news.cnet.com/8301-11128_3-57333789-54/molten-salt-keeps-solar-power-flowing/ <https://onlinelibrary.wiley.com/doi/10.1002/cite.202000137>

Artificial Photosynthesis

By using Photosynthesis the bushes convert sunlight into electricity. As such, engineers and scientists are looking to expand a technology with a purpose to use daylight and carbon dioxide to supply

electricity. This generation may have the dual benefit of lowering carbon dioxide stages even as additionally producing renewable gas. Scientists have validated that the technology is possible, but issues nevertheless lie in scaling up. Captured carbon garage and efficient conversion of sun electricity into power are challenges that, if conquer, will actually cowl the way of fulfillment for this era. Can read more: <http://solarfuelshub.org/approximately/>

Smart Meters

Smart grids and smart meters solve our scarce assets more successfully. Smart meters for energy, works successfully, also very cheap. So they'll permit us to software our washing machines to run best at some point of off-height power call for hours. In addition, smart grids for water can help utilities save water via decreasing leakages and so forth. These gadgets have large capability in smoothing out call for and ensuring greater efficient supply and as a consequence permitting us to get in more utility from reachable resources. Can study more: <http://www.edf.org/climate/clever-grid-evaluation>

Conclusion

- The weather is converting seems a long way in the future doesn't suggest we shouldn't act now pretty the opposite, we want to boost up our efforts. Despite the fact that the 12 months has introduced us many problems we are pleased to see big corporations and main technological corporations strongly dedicated to a enormously technological but sustainable development. The market research we ran on social media demonstrates that we as customers are all eager to ground the way to a greater cohesive and sustainable world.
- Sustainability calls for transformation and most organizations are coming across a way to consolidate new technologies and new measures to continue with their social-ecological development and framework. Now generation is shaping sustainability and permitting superior levels of productiveness and efficiency. New policies of groups that maintain close employees to engage in Sustainable Practices, and Sustainable Product life Cycles with much less unsafe substances.
- As an instance In India, Banyan country has released a recycling machine to address the issues because of plastic pollutants (excessive-give up recycled plastic), Pachama is a Silicon Valley generation enterprise the usage of AI and satellite data to take carbon offsetting to a brand new level. From reforestation to habitat conservation projects, it may legalize effectiveness of tasks through automatically studying satellite images. Transformative cloud technology, server much less computing ensures businesses don't overuse energy in the form of electricity.
- This is becoming very essential that business leaders must recognize the price of integrating satisfactory practices and reshape the business for a higher world. The electricity of assisting our worldwide to make sustainable does now not rest completely

on the shoulders of the huge-scale organizations however there are nonetheless behavior of smaller businesses can help too.

- Smart use of technology can save money and make more productive and save our power consumption; growth manufacturing ranges and allows us move forward.
- Small steps lead to massive changes and it is as much as anyone to create a greener, more sustainable destiny and we will do that with the aid of harnessing the power of generation.
- However, given that the improvement of latest technology and digital solutions adds a new range of vulnerability, there may be a want to deal with the risks of misuse and abuse of technology, such as corrupt and fraudulent activities that might be facilitated via technology. Moreover, there's a need to deal with the virtual divide among and inside countries, in addition to moral and human rights problems, to ensure the liable use of technology and statistics. One last thing to bear in mind is when it comes to sustainability it isn't only companies who can make a difference, we as persons can too.

Ethical Approval

Author is collected the content from various sources and rewrite the paper as a review article.

Consent to Participate

Not Applicable.

Consent to Publish

Author is ready and willing to publish this manuscript.

Authors Contribution

Single author.

Funding

Not Applicable.

Competing Interests

No funding was received to assist with the preparation of this manuscript.

Availability of Data and Materials

Not Applicable.

References

- Clark W C, Lebel L, Gallopin G, Jaeger J, Mabogunje A, et al. (2002) Science and Technology for Sustainable Development (Int. Council for Science, Paris), p. 12-29.
- Larigauderie A (2002) Global Change Newsletter 50: 37-38.
- Ruttan V W (2001) Technology, Growth, and Development. (Oxford Univ. Press, New York).
- Glacken C (1967) Traces on the Rhodian Shore (Univ. Calif. Press, Berkeley).
- Haefele W (1973) The Energy Systems Program Group of the International Institute for Applied Systems Analysis, (1981) Energy in a Finite World (Balinge, Cambridge, U.K.).
- Holling, C. S. Annu. Rev Ecol Syst 4: 1-23.
- (2002) United Nations World Summit on Sustainable Development. WE-HAB Framework.
- Parris T M, Kates R W (2003) Characterizing a sustainability transition: Goals, targets, trends, and driving forces. Proc Natl Acad Sci USA 100(14): 8068-8073.
- Kates R W, Clark W C, Corell R, Hall J M, Jaeger C C, et al. (2001) Environment and development. Sustainability science. Science 292(5517): 641-642.
- (2003) Forum on Science and Technology for Sustainability: Programs and Institutions. Initiative on Science and Technology for Sustainability.
- Schellnhuber H J (2003) in Challenges of a Changing Earth. In: Steffen W, Jaeger J, Carson D, Bradshaw C (Eds.). (Springer, Berlin), pp. 151-156.
- Kates R W, Parris T M (2003) Long-term trends and a sustainability transition. Proc Natl Acad Sci USA 100(14): 8062-8067.
- Turner B L, Kasperson R E, Matson P A, McCarthy J J, Corell R W, et al. (2003) A framework for vulnerability analysis in sustainability science. Proc Natl Acad Sci USA 100(14): 8074-8079.
- Turner B L, Matson P A, McCarthy J J, Corell R W, Christensen L, et al. (2003) Illustrating the coupled human-environment system for vulnerability analysis: three case studies. Proc Natl Acad Sci USA 100 (14): 8080-8085.
- Cash D W, Clark W C, Alcock F, Dickson N M, Eckley N, et al. (2003) Knowledge systems for sustainable development. Proc Natl Acad Sci USA 100(14): 8086-8091.
- (2000) Transition to Sustainability in the 21st Century. (InterAcad. Panel Int. Issues, Tokyo).
- (2002) Report of the Scientific and Technological Community to the World Summit on Sustainable Development (Int. Council for Science, Paris).
- (2002) Science and Technology for Sustainable Development (Int. Council for Science, Paris).
- (2002) International Institute for Environment and Development U.K.
- Marcus L, Ryan E, Mostafa S, Reza A, (University of California, Berkeley, USA) (2014) The Wave Carpet: Development of a Submerged Pressure Differential Wave Energy Converter. 30th Symposium on Naval Hydrodynamics Hobart, Tasmania, Australia, pp. 2-7.
- (1997) The Industrial Green Game. (Natl. Acad. Press, Washington, DC). National Academy of Engineering.
- (1999) Our Common Journey. (Natl. Acad. Press, Washington, DC). National Research Council.
- (2003) Complex Environmental Systems. (Natl. Sci. Found., Washington, DC). National Science Foundation Advisory Committee on Environmental Research and Education.
- Sahagian D, Schellnhuber H J (2002) Global Change Newsl. 50: 7-10.
- (2000) United Nations Millennium Declaration. (United Nations, New York) United Nations General Assembly, p. 1-9.

ISSN: 2574-1241

DOI: 10.26717/BJSTR.2025.63.009836

Rekha Trivedi. Biomed J Sci & Tech Res



This work is licensed under Creative Commons Attribution 4.0 License

Submission Link: <https://biomedres.us/submit-manuscript.php>



Assets of Publishing with us

- Global archiving of articles
- Immediate, unrestricted online access
- Rigorous Peer Review Process
- Authors Retain Copyrights
- Unique DOI for all articles

<https://biomedres.us/>