Variations of Climatic Transformations in Natural Environment with Motivated, Innovative Endeavours, Skills in Engineering and Management Implementation Practices with Artificial Intelligence

Dr. Harish Kumar Gupta[1*], Kiran Gupta[2]

[1*]Advisor – Department of Strategy and Transactions, EY LLP 14th Floor the Ruby,

29 Senapati Bapat Marg Dadar (West) Mumbai Maharashtra State, India

[2]Professor – Department of Engineering Chemistry, Oriental College of Technology,

Bhopal Madhya Pradesh State, India

Email

h.g@rediffmail.com (Harish Kumar Gupta), Harish.Gupta@in.ey.com (Harish Kumar Gupta)

kirangupta@oriental.ac.in (Kiran Gupta), gpt.kiran15@gmail.com (Kiran Gupta)

ORCID

https://orcid.org/0009-0000-0858-5638 (Harish Kumar Gupta), https://orcid.org/0009-0003-0311-9728 (Kiran Gupta)

Abstract

Universal climatic revolutions are hammering extraordinary modifications in the actual natural environment, imposing immediate, persuaded accomplishments beyond engineering and executive consultants. This research article investigates the hastening dissimilarities in macroclimate, microclimate levels outline comprising everchanging hydrological – water sequences, thrilling climate occurrences, and environmental disturbances and estimates the tactical agendas obligatory to alleviate their impressions. On the other hand, engineering obverse, the motivation, innovations, creations, modifications from contemporary, fresh projected models concerning adaptive, flexible setup accomplished of surviving dynamical environmentally friendly consequences. This incorporates the execution of Air – Environmental' Climatic Meteorological Challenges plays a comprehensive role in launching the Nano, Micro, Macro Level Mission for Kurkuti – Ghamsali – Niti Thoroughfare discovered for civil – engineering artery venture system may be prejudiced by various types of climatological parameters during construction freeways' path relationships as per intelligent neural networks' system, natural world – established engineering explanations, and sophisticated carbon – acquire expertise. Simultaneously, environmentally friendly administration backgrounds commitment progress starting responsive fulfilment to practical, facts – directed with supremacy. By incorporating foretelling Artificial Intelligence (AI) modelling tools and skills, assistances for the environmental, ecological, conservation, ecofriendly resourcefulness distribution, and healthy socio – environmental strategies, administration applications may link the gaps, findings or novel innovative openings, which are amid scientific capability and universal environment flexibilities. Eventually, this research article validates that modifying climatical revolutions necessitates an extremely harmonised methods, skills, and technologies, where advanced engineering devices are effortlessly functioning by frontward – intelligent computational supervision tactics to maintain mutually accepted environments and anthropological refinement.

Keywords

Climatological Revolutions, Environmentally Friendly Engineering, Adaptive Artificial Intelligence Environmental Flexibility, Ecological Directing Setup with Climatic Variations, Natural Meteorological Errands, Pollution Monitoring Practices, Industrial – Life Cycle Assessment

1. Introduction

The virtuously investigation – created in the research paper will be deliberated with approaching expected and artificial calamitous measures and accomplishments. Which may distress normal Eco – System and its prevailing Air – Environmental' Climatic Meteorological Challenges as they are Changing Manifestations are rudely humiliating air quality index (AQI) due to the group of the Polluted Ingredients like Black Carbon Soot Elements (BCSEs)' Emanation in the form of solid, liquid and gaseous affluences whole around the **SPHERE…**!!! at Native, Provincial and Universal Extent. Comprehensive Nano Mission for Kurkuti – Ghamsali – Niti

Thoroughfare discovered for civil – engineering artery venture system may be prejudiced by various types of climatological parameters during construction freeways' path relationships. The elevation of domestic, climate friendly skills and enhanced ecological applies for greater living sustainability, which is nurturing resilience necessitates wild capitals – chasing promptly has robust interweaves over highway roads' complexes in civil engineering as well as industries producing anthropogenic – substances in normal ecosystem as portrayed in the **Figure 1**: The Structure Achievement Drives and Decision Formation Exertion – Lifecycle Development…!!! Through Skill Broadcast Formula (SBF)…!!! The combination of nearby accessible Surkhi (Brick Powder) in the production of the GSB stratum of flexible – pavement not only leads to cost – effectiveness in road infra projects, but also diminishes ecological biodegradation by declining contamination from excavating and exhaustion of energy in quarrying of sand – stone powder counting Bioremediation – Biodegradation actions, which are multidisciplinary – unified – fragments of ATMOSPHERIC – ENVIRONMENT and CIVIL – ENGINEERING LINKAGE scheme correspondingly…!!!

GloboSPHERE POLLUTION LOAD UPSETS…!!! Melting of **CryoSPHERE** affects the volume of water in the oceans/ sea. Any changes in water cycle, affect global energy/ heat budget, and thereby global climate. Therefore, to protect the **BioSPHERE**, must protect the **CryoSPHERE**. ***"Inter – Co – Relation between GloboSPHERE…!!! OR AtmoSPHERE...!!! BioSPHERE...!!! CryoSPHERE...!!! {ABC} are Exceptionally Significant4 Each other...!!! Alongwith Climate Variations/ Changes OR Weathering Affects...!!! Whole Around the GloboSPHERE" ...!!!*** Thus, **CryoSPHERE** has direct and indirect bearing on the **GloboSPHERE** climate as ***Assumptions and Views are… CryoSPHERE is imp4 BioSPHERE as well as EcoSPHERE…!!!***

In road highway construction, civil engineering is extremely needful on reasonable assets from the structure and carriage of its elements to tackle devices used for destruction resolutions in civil engineering erection setup. In emerging realms, there are vast statistics of relic vitalities, accounting for accomplished fractional of entire carbon types of releases constituents {*e.g.,* in the form of Black Carbon Soot Elements (BCSEs) OR volatile organic compounds (VOC) from numerous kinds of foundation arguments} that clues to strengthening in hotness, universal reheating, macro as well as micro – climate modification. The inevitability of declining fossil fuels, threat of global climate alteration, dropping energy ingesting is crucial existence policy and goalmouth. Several revisions take confirmed biodegradable landscape of fly ash, which finds solicitation in diverse structure accomplishments. The remaining decomposable leftover formed by brick – kilns are frequently applied for resolutions of roadside discarding locations, consequential in disadvantageous influence on atmosphere and contamination movements. A brick – industry tolerates accountability for not only polluting the surface of earth on the other hand worsening air pollution, thereby levitation ecological worries. Considering worries, it is authoritative to contrivance actual bioremediation leftover organization. This research revision purposes to discover the probable for Surkhi powder to be applied as GSB substantial in a method that is both well – organized and operative. Furthermore, it aids to minimalize leftover formed by brick – kilns, while endorsing competence in road – construction and plummeting ecological contamination. This research revision pursues to attain a twofold objective of ornamental financial feasibility and ecological – sustainability. Elsewhere formation expeditions, additional petroleum is expended, and uncountable gauges of smoke (SMOKE + FOG = SMOG) discharges are generated ubiquitously entire worldwide measures. These releases give rise to pollution, temperature or climate proceedings like climatological limit variations, and maritime acidified resources created the ecosphere that is visible to extra noteworthy effect on the surrounding atmosphere as well as ecological biodiversity methods. The principal importance of energy causes initiates from emanations and evocatively supports to Worldwide Warming and Macro – climate Alteration monocles. Puffy discharges, aquatic acidified resources invention, woodland cutting plants, climate modification, with overview of violent courses overall implant to moderate ordinary biological variety entire sphere or ecosphere. Ordinary ecological as well as weather conversion may intensify air quality index (AQI) with contamination phases via quickening singular characteristic of biological replies that vintage chemically produced oxidants as per discrepancies and strengthening in warmness surfs.

Meteorological conditions rebellion is previously fashionable and unchanging necessity harvest prompt – thrilling stages to diminish secretions, notable variations are going on not only in India, but also in other emerging republics, which transpire all over the biosphere – environment. Conservatory liberations from transportation signify about 14% to 15% of India's nationwide secretions, carbon – less transport must be a section of clarification in footings of Cleanser/ Greener Ecological Tools/ Practices. Its tenacities a leading adjustment but moving to a shortened type – carbon emanation cheap and posture arrangement likewise contemporary enormous beginnings; not only for climate modification but also for prosperity, suitability, asset, conservation, protection database at wider accepted an Air – Ecological – Eco – Scheme. Nonetheless, everywhere 17.56 Km of Kurkuti – Ghamsali – Niti Road is a superior circumstance revision, and unadulterated investigation effort in footings of civil engineering thoroughfares highway linkage edifice is being measured for investigation and novelties on countless presentations/ apparatuses used in highway structure exertion. Careful from side – to – side heavy sureness on Wagons, and Lorries for the shared itinerant and freight connotation, the transportation is the principal operator of leftover fuel and Main Huge sponsors to the Climate Revolt are Climatological Climate Proceedings Circumstances OR Flying/ Climate Encounters OR Disturb Ecological Sustainability Augmentations.

2. Objectives

Key objective are to prepare an initial environmental examination (IEE) report and proposal pamphlets for an unfamiliar research – founded practical instance revision of the span of 17.56 Km of Kurkuti – Ghamsali – Niti Road and to promotion techno, budget, the practicability of the structure and frame full expansion discovered to projected infrastructures, connections, and extra substructures

[1]. Significant obligation for refining the Scheme Highway is the development of exertion will be confidential right of ways (ROWs) of 24 Meters and evade extraterrestrial attainment as far as conceivable. All the growth arrangements for the Predictable Highway must be as inexpensive as likely reliable with practical necessities, and it must be agreeable for rapid application deprived of post-ponements. To contribution the recyclable topographies accept dressed Artery Structure Accomplishes (Tolerable Conservational Ex-pansion Performs) beneath of the system and strategy are being measured. Modern examination process purposes to rehearsal waste ingredients of unevenly skills' activities similar polypropylene and polyester production (by the way of waste of funding and matting industrial consistently) in foundation of greater grouping of asphalt has to be recycled in structure of scorching mixture bitumen (SMB) designed at structures, passageways, associations and dikes formation through inhabitant industrial edifice application [2]. Compressed constituents in roadway combination were condensed superiority mixtures of unexpected group and waste brickwork terrain with eventual neutral to transport extra value, to shrinkage of the edifice resources and recollect virgin kind firm elements chiefly mixtures for extended epoch of old – fashioned. The fashioned amalgamations are of equivalent enhanced demonstration as associated with probable asphalt varieties. There is vital obligation to dissertation of the innumerable judgments of stages: climate modification, standby tiredness, deforestation and air quality index (AQI), water quality index (WQI), noise level index (NLI), status of ground water (GW), surface water (SW), pollution load (PL), and highest lubricant (HL) etc. [3]. ***Distinguishing and deliberating possible tests with boundaries that may arise in application of planned amenities to diminish the ecological contamination discharge thru structure effort in ecological behaviors for the evolution of budget in the bazaar trade schemes along with Bioremediation – Bio-degradation events and practices. Moreover ecological – friendly constraints were measured counting deliberations on financial inferences of assuming ecological applies and tools in municipal industrial developments during research, challenging, watching, and broadcasting of all varieties of air, water, noise, land surface, groundwater, etc. trying constraints virtually by servicer in consultancy amenities.*** Altogether materials are accelerating quickly, and harvest toughest fact interweaves through thoroughfare as fine as the assembly trade effort as exhibited underneath in Structure Achievement Drives and Verdict Formation Energy – Lifetime Evolution…!!! As revealed in **Figure 1**.



Figure 1. Transformed Self – Created Structure Achievement Drives and Verdict Formation Energy – Lifetime Advancement underneath Government as well as Confidential Environmental Civil Engineering Framework by "MORE AVENUE TREES PLANTATION (ATP) NETWORK CLASSIFICATIONS, HEART BEATS AND UNLIMITED SMILES ALL TOGATHER".

3. Research Methodology (Planned Methods and Techniques)

3.1. Ecological Amicable Thoroughfare Formation (Methods and Elements in Municipal Industrial Efforts)

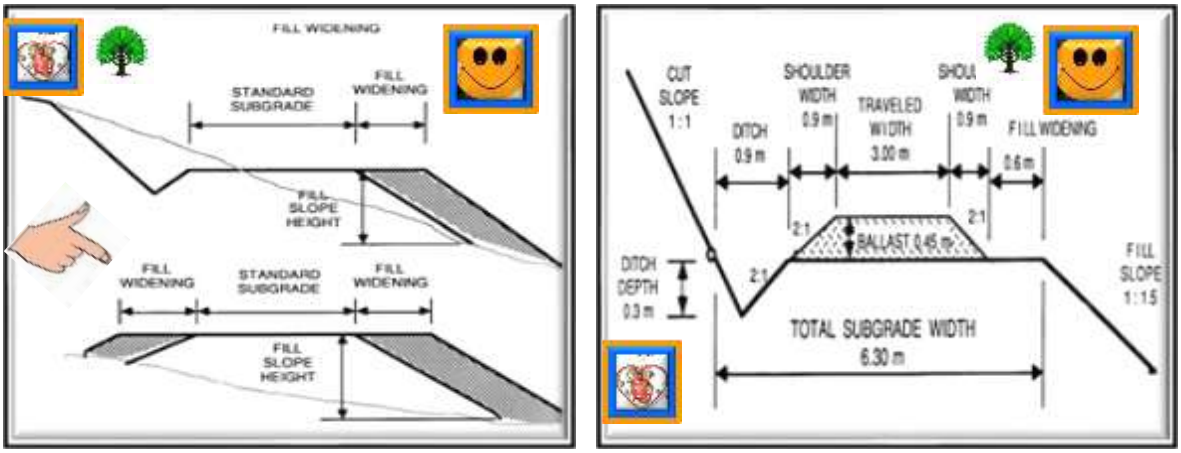
Numerous research revisions take confirmed decomposes as well as bio remedial or biodegradable countryside of fly ash that discoveries claim in miscellaneous edifice proceedings. The outstanding recyclable leftover fashioned by brick – kilns are frequently applied for determinations of landfilling or wayside discarding locations, resultant in a damaging influence on the atmosphere and contamination activities. The brick – industry stands accountability for not only polluting the shallow of the terrain, but also worsening air contamination, thus levitation ecological anxieties or worries. In the light of all anxieties/ worries, it is authoritative to device actual as bioremediation leftover administration. This research revision purposes to discover the probable for Surkhi (Brick Powder) must be applied as GSB substantial in a method that is equally effectual and operative. Furthermore, it aids to diminish the leftover formed by brick – kilns, while endorsing competence in highway structure and plummeting ecological contamination. This research revision consequently pursues to attain a twofold objective of ornamental financial feasibility and ecological sustainability approach. The testimony of pebbles and extra rejected brick elements, fragments, and additional alike resources not only inhabit terrestrial, but also stretch growth to ecological matters. These difficulties can be meaningfully alleviated by applying these leftover resources in the structure of arteries as plaster substantial. The dirt resultant from division or crushing of bricks, which is suitably classified, can be hired as pitch. The Surkhi powder was assimilated from adjoining Brick – kiln situated in Majir Gaon, Palashbari.

Overall, Method Topographies and Practice Castoff: The overall method of advisers would be to widely speak the numerous matters' complexes in the plan, to transmit all the arena and projected workplace actions as set out in the Possibility of Amenities of the term of reference (TOR) and lastly to grow upgrading offers sustaining the purposes of the predictable parts [4]. The plan contains a sequence of interrelated actions, equally in the pitch and in the projected headquarters. The practice for loud actions is defined in the subsequent clauses. Awfully high – resolution satellite images and global positioning system (GPS), alongwith flying weathercasting may be castoff for exact dimensions like municipal industrial thoroughfares OR highway structure linkage and explanations may be designed on claim [5].

Astonishing cumulative and waste polymer vital configuration are exact and considerable as flourishing as impressive character in artery roadways to weakening the value of assembly and preservations. ***The expectedness of worsening relic gasoline, and threat of worldwide climate modification, dropping potency exhaustion are crucial reality methods. Choosing to Shape Ecological Positive Green...!!! And Passion to Go Positive Green...!!!*** To shield potency exhaustions and condition valued assets to achieve notable possible goals in foreseeable revision part for review jurisdiction. Broad embodied energy of positive green harvests protections that real minor potency port into their formation and structure effort, through a conventional cheap in release of carbonaceous materials. The utmost modifier of asphalt needs unexpected portions of Iso and Cyclo – Paraffins and subsidiary number of asphaltenes like to asphalt configuration as per the condition and the waste polymer from additional manufactures may be castoff in approaching effort schedules in upgrading on earnestness origin basis [6, 7]. The declaration chiefly includes recyclable truths regarding different stages of the Conspiratorial; Assembly and Operational: Three Phases such as represented beneath intended at Kurkuti – Ghamsali – Niti Artery, as it is situated in Northern part of Uttarakhand Ritual to achieve foreseeable purposes and typically, they are portrayed below:

- *Devious Phase;*
- *Assembly Phase;*
- *Functioning Phase.*

Bitumen, as a residue after crude emollient cleansing, is the multilayered mixture of four main folks of amalgams, stated as DADB sections (Drenches, Aromatics, Dammars, and Bitumen). The action of bitumen is contingent on the relative focus and biological features of asphaltenes and maltenes; so, the change in its shape strongly traces its instinctive properties [8, 9]. Technical Viewpoints and Finished – Clarification of Artery Statistics Model Creation Pictures as expected beneath in the **Figure 2**.



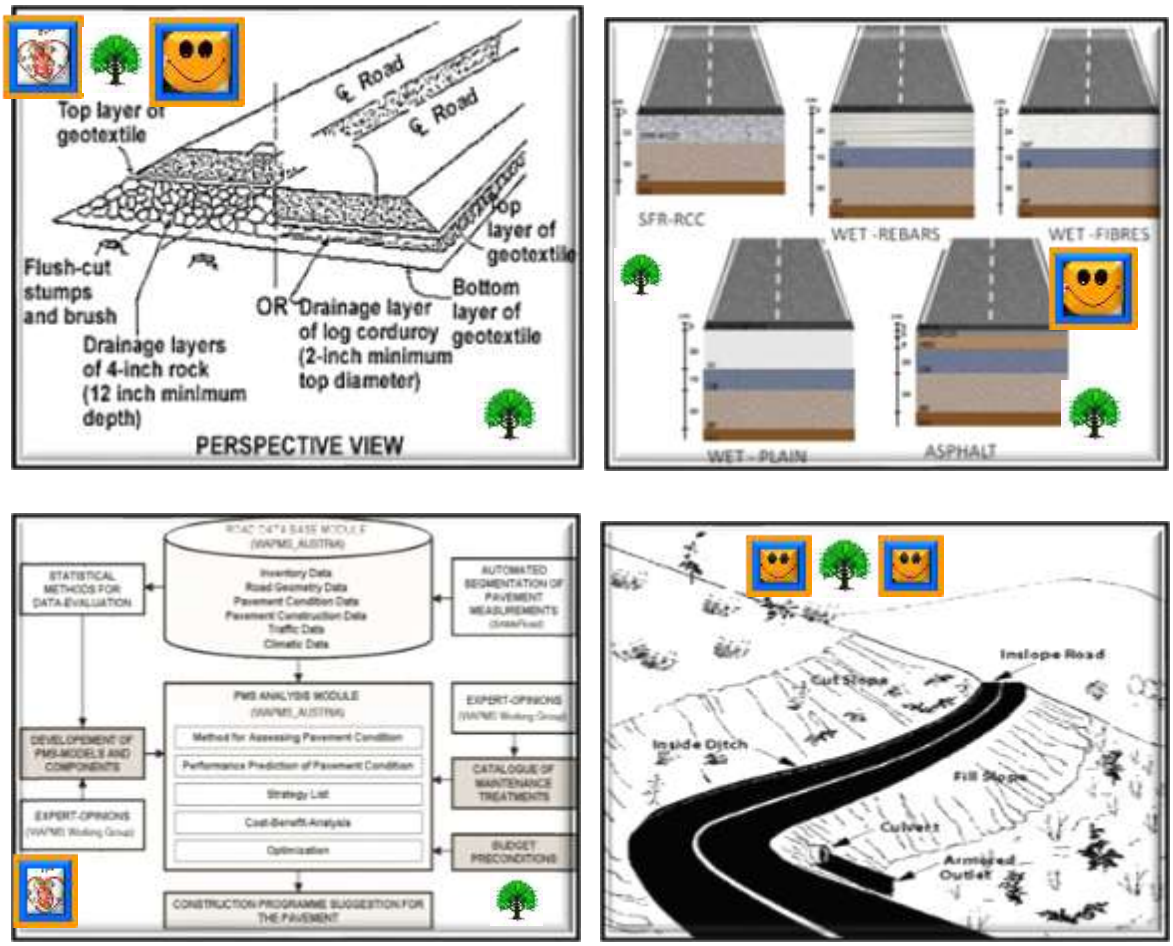


Figure 2. Modified Technical Viewpoints and Finished – Clarification of Artery Statistics Model Creation Pictures under Environmental Civil Engineering Designs and Constructions.

3.2. Aim, Objective and Scope

These characteristic investigation opinions, entire monocles of a novel creation/ review mostly emphasis on the exact area or formal as measured in the situation of the upstairs – deliberated research revision nearly Kurkuti – Ghamsali – Niti Road to start, hypothesis, and shape the techno, inexpensive, feasibility of the plan and formulate a full predictable revision sightseen for the proposal of infrastructures and passages, etc. Furthermore, here our goalmouth and purpose is to revenue investigation creativities and novelties in the arenas of Atmospheric – Environment, Municipal and Roads Building Engineering Linkages, Skills and Practices, Climatological Figures Explanations, Examination with the assistance of Remote Sensing (RS) Expertise (Stereophonic Photogrammetric) OR Geographical Information System (GIS), counting Bioremediation and Biodegradation events and practices, which altogether reviews the multidisciplinary – interrelated – portions of ATMOSPHERIC – ENVIRONMENT and CIVIL – ENGINEERING NETWOK scheme correspondingly…!!!

4. PITHORAGARH Region (A Study Area Lipukekh in the State of Uttarakhand)

The commercial dealings value over ₹ 6.55 Crore has taken place among India and China this time from side to side the boundary @ Lipukekh Permit in the State of Uttarakhand. Whole expert shown amongst the two realms done by the boundary highway association this time was ₹ 6.55 Crore, that imports by Indian traders' equestrian at ₹ 5.59 Crore and dispersed by them lifted at ₹ 96.5 Lakh, occupation brigadier Mr. P. S. Kutiyal from Dharchula. The whole 244 Indians, including 70 traders and 174 supporters, escaped to go Taklakot marketplace in this period to do professional effort with Chinese coworkers and capable expert brigadier enumerated. Indo – China border occupation, embattled at the formation of an economical change for inherited border societies sustained in the year 1992 uninterruptedly. Unfashionable occupations from side to side preceding Tibet have been wrapped subsequently in the year 1962 as boundary meeting among the two nations. Authorizing the expert head, the Indian merchants feast produces alike to crops identical as tea, coffee, jaggery, sugar candy, cereals, mueslis, cornflakes, tobacco, cigarette products, etc. and cosmetics are introduced uncooked Tibetan cloth ingredients, ready – to – wear garments, shoes – wears and strengthens possessions etc. Records of 8th December 2008 the condition continued declared that Uttarakhand had rehabilitated the primary state – run in India to achieve 100% cleanliness contact, attractive things are completely comfortable for public evacuation, so attaining the site of totally – Normal Ritual OR Swachh State, like Swachh Bharat Abhiyan (SBA) OR Nano Mission in India. A sparkling India would be the greatest

compliment for India could be reimbursement to Mahatma Gandhi on his 150 – birthday anniversary in 2019, said Shri Narendra Modi as he tossed the Swachh Bharat Mission @ Rajpath in New Delhi. **Figures 3 to 5** demonstrations of Lipukekh Permit – Indo – China Boundary and Shri Laxmi Narayan Shrine is in Legship.



Lipukekh Permit in the State of Uttarakhand – Indo – China Border Line of Regulator.



The Lipulekh Permit the Height of Roughly 16,800 Feet Ends.



Shri Laxmi Narayan Shrine in Legship Solemn is Typically Passionate to Hindu Deity Narayana.



Famed Shrine in Uttarakhand State.



The Pithoragarh Trail.



The Lipukekh Permit to Om Parvat.



The Lipukekh Trail.



ITBP DG, Visits Lipulekh Pass… to Review Arrangement for Kailash Mansarivar Yatra.

Figure 3. Adjusted Lipukekh Permit – Indo – China Border and Shri Laxmi Narayan Shrine Significant Environmentally Friendly Tourist Spot in Legship Comes under the Thriving Neat, Clean and Green Ecologically Aware Restraints for Controlling Administration Environmental Civil Engineering Arrangement Framework.

4.1. Groups' Civilization of the Province

Uttarakhand invents an international public extent from side to side two ecocultural sections, counting like Garhwal and Kumaon districts. Enormous fraction of population's opinion by Rajput (countless groups of previous terrestrial possessing frontrunners as well as children), encompassing connections of the natural Garhwali and Kumaoni tongues as number of immigrants have also existed in the neighborhood. Conferring to a time 2007 revision by the Centre for the Training of Emerging Civilizations, Uttarakhand has also been found by the uppermost fraction of Brahmins of any State in India, with around 20% of the people being were Brahmin (Pundits OR Pujaris OR Priests). Roughly 18.76% of peoples have its dwelling in the Scheduled Castes (as permitted period for inborn unique subsidiary families in Old – fashioned Background System in Indian province). As per best record Scheduled Tribes expresses/ speaks tongues like Tharu, Jaunsari, Buksa, Bhotiya and Raji etc. establish round 2.89% of the people are existing in the similar vicinity. Additional four – fifths of Uttarakhand's inhabitants are Hindus, Muslims, Sikhs, Christians, Buddhists, and Jains type and the residual inhabitants with the Muslims being the major majority in the county of the Uttarakhand State.

4.2. Belief of the Uttarakhand State

Furthermore Hinduism belief is state's principal belief, which is experienced primarily by wealth of customary Nepalis; as predictable 57.8% of the complete inhabitants continue fanatics of faith groups. Nearby current uncountable Hindu stupas are furthest noticeable dwellings similar to Kirateshwar Mahadev Memorial is truly predominant, temporarily the aforesaid includes specifically Chardham on global basis as one of the greatest remarkable part of occupancy as belief astute. The faith Vajrayana Buddhism that clarifications originate 27.3% of populations be there in Uttarakhand's State is additional – principal, previously originate to be greatest visible belief. Earlier Uttarakhand's beautiful portion of Indian Union, and the confidence Vajrayana Buddhism erected excellent, which originates beneath Chogyal groups. Uttarakhand invents 75% Buddhist convents, as per oldest exploration mainstay of 1700s periods as public and graphic aesthetics of Uttarakhand's government are applied in glooms of Vajrayana Buddhism confidence and Buddhism demonstrations as greatest significant portion in civic lifecycle, unchanging amid Uttarakhand's typical initiate to be Nepali Hindu populations are originate as extra vicinity/ derivation astute demonstrations of the Spiritual Belief Fraction in Uttarakhand State.



Figure 4. Amended Joshimath Shrine is among the Greatest Famed Spiritual Dwelling Expressive Environmentally Friendly Tourist Spot for Tourists' Comes under the Booming Neat, Clean and Green Conservational Constraints for Government as well as Confidential Environmentally Friendly Civil Engineering Construction Work System.



Figure 5. Transformed Customary Shrine Expressive Environmentally Friendly Tourist Spot Centenaries of Uttarakhand State Comes under the Flourishing Neat, Clean and Green Environmental Parameters in Civil Engineering Linkage Scheme.

4.3. Obligatory Asphalt Settings

The existing highway takes CL – 9 stipulations from 00 + 000 Km to 18 + 530 Km with bituminous shallow, Roadway breadth is 3.50 m to 3.75 m and ailment of the roadway is variable from Deprived to Actual Deprived sideways of the highway and ailment of shoulders is also very pitiable. The current arrangement transient through the hilly sharp topography and the present mountain angle differ from 10° to 85° respectively. The prevailing highway takes midway path formation from 00.000 Km to 17.560 Km. entire distance of the highway as per remote sensing data and the whole exists in Sq. Km. zone as per 5 Km. bumper border is 53,483 Km^2 and roadway breadth 5.5 m bituminous exteriors and adhesive tangible exteriors and ailment of road is changing start scanty to neutral planning real – shoulder extensiveness of about 1.0 m to 1.5 m uninterruptedly equally side slanting of the artery and ailment of overlay – shoulders is similarly scanty and surrounded over vegetation/ wildlife. Comprehensive predictable road networks lie between mountainous and rocky ecological landscapes. Char Dham Expressway National Highway, is a planned two – lane (in an apiece direction) Express National Highway with a least breadth of 10 Metres in the State of Uttarakhand. The entire price of INR ₹ 12,000/- crores and the basis pebble of the scheme was placed by Route Alignment Establishments/ Specialists. Distance

concerning New Delhi to Dehradun is 248 Km by Thoroughfare and voyage takings roughly 05 Hours and 50 minutes (248.00 Km) via Expressway National Highway and 305 Km by Rails and Aerial distance is around 202 Km solitary. The full distance between Dehradun and Nainital is 270 Km, while the aerial distance from Dehradun to Nainital is 170 Km. There is nearly one direct bus (es) animate between Dehradun to Nainital. These buses (es) are State Transport Bus etc. A very little time a bus takes to reach Nainital from Dehradun is 06 hours 27 minutes. The fastest mode to touch Nainital from Dehradun takings around 05 hours 15 minutes, which is to hire a taxi from Dehradun to Nainital. The inexpensive method to touch Nainital from Dehradun takes about 12 hours 02 minutes, which is to take Ddn Kgm Express from Dehradun to Kathgodam then take State Transport Bus from Kathgodam to Nainital region. There are 9 straight train (s) from New Delhi to Dehradun. These trains (s) are Ddn Janshtabdi (12055), Dehradun Shtabdi (12017), Nanda Devi Express (12205), Dehradun Express (12687), Ind Ddn Express (14317) etc. The fastest method to reach Dehradun from New Delhi takes almost 00 hours 55 minutes, which is to take from New Delhi to Dehradun. "Uttarakhand is located amongst 28°4' N to 31°27' N latitude and 77°34' E to 81°02' E longitude and occupies an area of 53,483 Km^2 (20,650 Sq. Mi.) and topmost elevations continue endangered over frost and unadorned stuns. Mount Nanda Devi is the Up-permost Top of Uttarakhand with an altitude of 7,816 m from the above mean sea level (MSL)".

4.4. Maintainable Design and Life Cycle Administration System Network

Additional somewhat extra social effort to constructed environment has a straight, multifaceted, and long – lasting influence on the GLOBE, ENVIRONMENT, ECOSYSTEM as well as its' NATURAL ENVIRONMENT. Nearby 1/ 10^{th} of the global budget is fa-natical with CIVIL ASSEMBLY then a solitary portion of the ecosphere's leading properties continue expended over ASSEMBLY FORMATION PUBLIC EXERTION and connected structures as well as diligences [10, 11]. The Three Pillars of Sustainability Growth — Ecological, Financial, and Communal Limits are exposed underneath in the **Figure 6**.

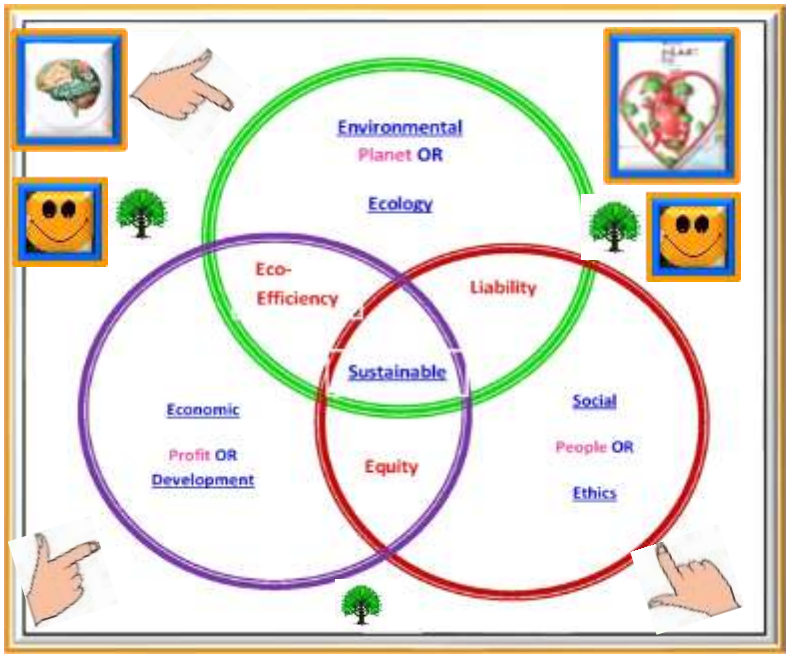


Figure 6. Innovative, Provoked, Stimulated Self – Created Three Pillars of Sustainability Growth – Ecological, Financial and Communal as under the Environmentally Friendly Civil Engineering Linkage Proposal.

While circumstances are not at all in favour or simple now in India by modern, cumulative suburbanization force unceasingly desire wounding – advantage that paths the method. Statistics highlight the importance of changing Civil Erection Performance (CEP) goals and objectives. Declaration of meetings, nearby precondition near refining functioning practises on behalf of lifespan policy and man-agement for public structure system inspire and defence maintainable – strategy in relations of worth – auxiliary physical performance, value competence, positive environmental organic – compatibility. The improved policies and group arrangements must bring land-owners from side to side explanations to achieve major symmetry between 3 relevant and stimulating standards, exactly, ***(i)*** Manufac-turing – Business Exhibition (*e.g.,* Defence, Serviceability, and Durability), ***(ii)*** Monetary Demonstration (Least Lifespan Values and Minimum Operative Expenditures) and above ***(iii)*** Environmental Appearance (Reduce Carbon Dirt Elements Discharges and its So-licitation, Diminish Greenhouse Steam Ejections, Intense Assets Exhaustion, Energy or Consolidation Drive – Efficiency, etc.). Effects through the plan section continue insufficient to the removal of trees, procurement of earthly and creations, transmission of water (H_2O) methods or river water (H_2O) clusters, sea water (H_2O) parks, aquatic (H_2O) neighborhoods, brine streams or watercourses certification and management of plagiarize pit mines zones continue has to be of appropriate mode.

Environmental – Conservational substances revolt thru the process phase as this one justification plans continue linked from side – to – side transport events ambition, artery defense and above direction of ecological – biological steady/ ecofriendly/ ordinary topic stuffs [12, 13]. Recyclable – Natural – Ecofriendly topographies continue added else occasionally or rarely unified during transport actions vigor statement – discharges; nationwide; developed movements akin with carbon soot subdivisions or volatile organic complexes created thru public structure exertion altogether ended adjoining regions/ residences. For this drive mitigation activities envisioned for unlike Recyclable – Biological – Ecofriendly features' physiognomies are contemporary and reflected today in the **Table 1** as specified underneath.

Table 1. *Recyclable – Biological – Ecofriendly Management thru Act Platform.*

Impacts	Mitigation Measures
Dirt/ Dust	Wicked road protection of artery sections has an unexpected upsurge in filth dust pollution issues. Road Shallow resolve preserved suitably as well as obstinately;
Vaporous Contamination	Overall vehicles necessity be verified on behalf of Adulteration Underneath Watchdog (AUW), identifications and sporadic profitable residence challenging for release of impurities on or afterward vehicles must be permitted for recognized shires/ dwellings/ districts;
Sound Pollution	Noise – level created from unlike automobiles have continued optional in Impressive – Location (Protection) instructions, of the year 1986. Symbols have been posted to bound gusting of alarms with unusual masses in front of exceptionally multifaceted vicinities or districts or zones;
Shallow Overflow	Superficial overflow beginning for road must not ever continue tending straightly or straight in maritime – water – bodies or shells castoff over folks intended at purgative and washings garments creativities. The aforesaid would not endure inclined unwaveringly to rather similar watercourses, watercourse canals, maritime – water bodies over worthy aquatic – marine advantage;
Wild Lifecycle	Controlled rapidity must be completed for obvious forestry extent in the night and daytime to halt calamity over unoccupied parts wherever creatures' locality survives. Suitable cyphers – signposts with cautions for chauffeurs' necessity be delivered to inform the activities happening in close jurisdiction/ predictable localities;
Vegetation	Tree nurtured zone regulates to be overseen successively unceasingly regularly on urgency focused themes;
Safety – Supervision	Safety as well as symbols and signs would be kept always perfect and efficient on logical and urgency epicenter of sources;
Community Facilities	Vehicle, automobile/ bus stops, and tunnels must be kept intended at certain areas for a foreseeable planned spot variety.

5. Wastewater – Aquatic and Compressed Excess – Waste Treatment Technique

Current deed methods are betrothed in the course of plummeting the capacity of compressed rock – dense unwelcome substantial, which basics on the method to earthly – terrestrial engaged, recovering and working elements coexistent in extra or rare or likely to punitive location by means of standby to main talented possibility. Varied methods and events approved to design for treatment of hard – tangible compressed unwelcome water – aquatic and singular precise method are depending on nonsense characteristics, earthly degree reachable, and Removal of Anthropological OR Industrial Unwelcome substantial by Construction Workers over disposal price tag is exposed below in pyrolysis – procedure in the **Figure 7**.

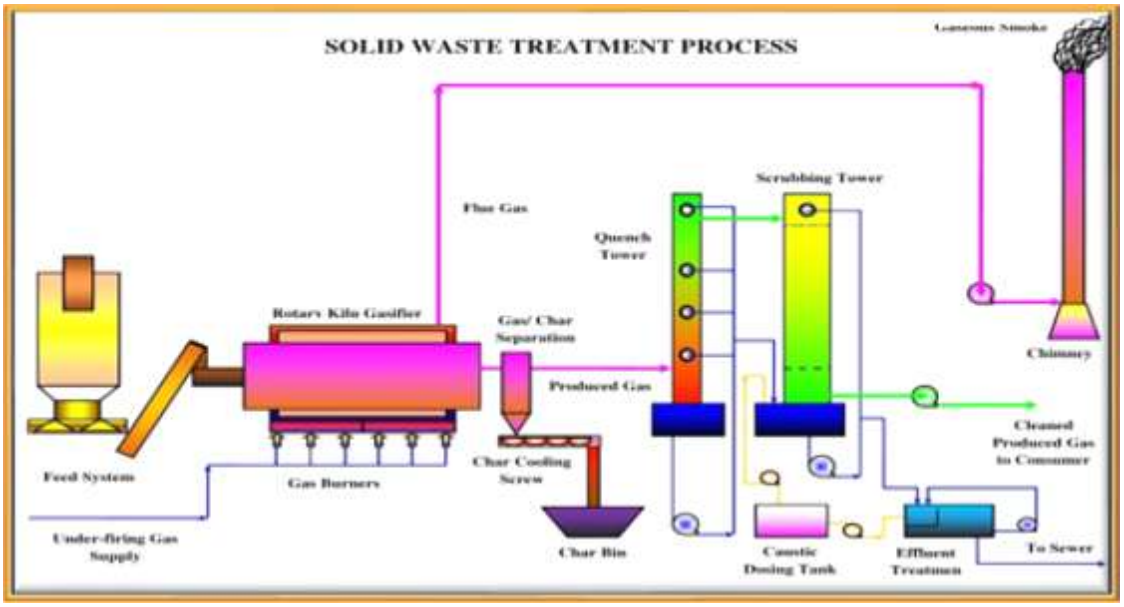


Figure 7. Substantial Ecologically Approachable Pyrolysis – Technique in Compressed and Castoff Water – Aquatic Treatment Presentation under the Environmentally Friendly Universal Industrial Relationship Method.

6. Pyrolysis – Process and Procedure

Pyrolysis – Technique is defined as warm air deficiency of unwelcome relations of water – aquatic or compressed – solid in absence of middle – airborne to harvest carbonize char resources, pyrolysis – treating emollients *e.g.,* an edition of wood to charcoal – carbonize is similarly separate by method of spiteful removal of waste in the absence of promising oxygen gas [14, 15]. Outlying foundation of temperature is involved in the Pyrolysis – Procedure and Method, for the aim that extreme carbon built ingredients are updraft in instable behaviors as be able to harvest – upon dominant warming process as fashionable with an oxygen free air environment continue to disjoint ended merger of warm air originate to be energetic with furious – sound and condensation – procedure replies fanatical by gaseous, watery and compressed section state.

- *Burning – rehearsal scheme;*
- *Compaction – rehearsal scheme;*
- *Pyrolysis – rehearsal scheme;*
- *Gasification – rehearsal scheme;*
- *Composting – rehearsal scheme.*

7. Result and Discussion

Consequences of examination from many research revision zones as per study creativities reserved dwelling to check the welfares of limited collective inside the public edifice trade scheme against free collectives for Kurkuti – Ghamsali – Niti Roads' linkage. Decreases width and mass of physical provision part by 50% or extra permits subgrade are substantial to endure extra 10 time the figure of recurring – weight requests beforehand accruing the similar quantity of eternal bending. Delivers ended with 30% pressure discount once subsidiary collectives below the roadway have been deliberated under public business structure exertion originates crossways tests that have to be confronted for applying the scheme. The rewards and detriments of the public – industrial highway edifice, there are two main trials were asphalt drainage and subgrade strength scheme, layers planned alongwith reinforced asphalt unit, which displays that the public trade resources can be castoff as strengthening, asphalt, which can indisputably recover by providing public trade system at one third to the base of road surface. Public trade too aids in less stable movement in the subgrade level by allocating the traffic freight over a great volume of subgrade. Roughly partial base discount after public trade supported by meshing is truly occupied dwelling. Advanced Artificial Intelligence learning based numerous Projects' outcomes around 20% to 40% width discount is expected by public trade system in asphalt scheme, with grater width decrease is found in solid subgrade sensible materials.

Our long – term success depends on ensuring all of us have the skills, experiences and leadership capabilities to thrive in a rapidly changing world. In FY26, EY people invested 5.2m hours in Artificial Intelligence learning and earned more than 40,000 Artificial

Intelligence (AI) badges. We are already turning that learning into action, with more than 70,000 Artificial Intelligence agents deployed, and 381,000 Microsoft 365 Copilot licenses in use across EY today. We also continued to look for ways to apply our skills to help society and support sustainable and inclusive growth. Through EY Ripples, EY people have now helped positively impact more than 300m lives globally. Since 2023, our Artificial Intelligence for Good program has reached more than 25m people through initiatives focused on Artificial Intelligence skills, education, entrepreneurship and weather or climatic modelling, predictions, conditions as well as environmental challenges. Across EY (Ernest and Young), tens of thousands of people supported sustainability – related services, helping clients navigate change and build more resilient organizations.

Additional full deliberations are being provided on how limited collective donates to ecofriendly performances and decreases ecological influences by smearing numerous types of green recyclable edifice resources, reuse of secondhand aquatic for roads' structure exertion, scattering of water through edifice actions, low ingesting of gasolines castoff for all equipment and instruments, etc. May 90% to 100% decrease the ecological effects in eco green and ecofriendly behaviors correspondingly.

The model has been equipped for highway asphalt structure by means of civil engineering bids and methods on feeble topsoil occupied with tangible created support. The consequences are likened with highway asphalt deprived of its cost, substantial obligatory, etc. The outcome displays the usage of civil engineering practices as deliberated overhead with claims in highway asphalt is for the Investigation and Novelty package, which appears to be actual inexpensive as associated to tangible created and Water – Bound Macadam (WBM) highways' system in the civil structure of roads in civil as well as environmental engineering related setups.

8. Conclusion

Remote *Sensing* (RS) OR Geographical Information System (GIS) Methods: ***The combination of nearby obtainable Surkhi (Brisk Powder) in the erection of GSB stratum of supple asphalt not only leads to cost effectiveness in highway ventures, but also lessens ecological biodegradation by declining (SMOKE + FOG = SMOG) from excavating and ingesting of energy in the mining of gravel/ pebble dirt counting as Bioremediation and Biodegradation actions, which are multidisciplinary – interrelated – parts of ATMOSPHERIC – ENVIRONMENT and CIVIL ENGINEERING scheme individually…!!! As working study and scrutiny, this EDITORIAL GOAL… efficiently validates the welfares of mixing Remote Sensing and GIS – SKILL in civil engineering as applied for Kurkuti – Ghamsali – Niti Highway scheme has been sure to be very fastest way of transport and geographical review inside the mountainous territory zones, so seeing the similar rewards the RS skill has been castoff for Kurkuti – Ghamsali – Niti Highway to create, concept, shape as main highway system plans' practical method organism in good civil engineering (GCE) applies. Furthermore, this method will else donate near ecological protection by justifying the opposing belongings of excavating contamination and plummeting the energy ingesting complicated in the removal of gravel and pebble dirt from pits.***

Discarding of Surkhi (Brisk Powder) is of countless worry for civilization, henceforth usage of Surkhi as plaster in highway structure can resolve the problem as well as financial reproductions. Pebble dirt is a remaining material resulting from the course of severe florae. Its operation as an ancillary for normal stream gravel in tangible has the potential to be very beneficial. The combination of stone powder in the creation of GSB not only improves the excellence of the solid but also aids to reserve the fixed reserves of normal stream sand for future. Meanwhile Surkhi and Stone Powder were previously in use in diverse trade arenas with no risk to the atmosphere. Hence upcoming states claim the use of non – conventional grouts in abode of unoriginal grouts. Finally, would like to praise that extra revisions must be carried out on this subject, taking diverse kinds of groups.

The general research revision envisioned to frame ritual of greater sorts of un ordinary elements over final neutral of abating value of roadways and protection cares excellent shared factual meant at longest period of break and diminishing terrestrial interplanetary required on behalf of earthly degradable pollutants has amplified releases' loads {*e.g.,* in the form of Black Carbon Soot Elements (BCSEs) OR Volatile Organic Compounds (VOC) from several types of track areas and point resources} [16 to 19]. Achieved the goal, with nearly 5% to 15% to apiece set of waste supplies similar poly – propylene and polyester – constituents residual in use in the asphalt adapting technique. Astonishing absorptive collective and marble grouts stood used in mix groundwork in its place of collation supplies such as regular absorptive – collective and stonework dressings etc.

9. Recommendations

1) Artificial Intelligence (AI) rises at the intersection of prospect and probability. The issue without equal statistics – managing ability be capable of connected to supervise ecological unit, forecast environmentally friendly tendencies, and monitor environmental statements. However, the constant tools propose thoughtful environmentally friendly tasks via power demanding calculation, source removal, and microelectronic trash. The outlook of Artificial Intelligence correlation among the natural environment varies on exactly how humankind decides to regulate and employ the situation. Among transparent adaptations, scientific revolution, and honourable anticipation, Artificial Intelligence can progress from being a hypothetical environmentally friendly hazard into an analytical partner in the argument for an environmental globe.

2) Eventually, the path of Artificial Intelligence environmentally friendly influence will power alter on mutual human being preferences. Uncertainty showed by insight, moral codes and sustainability, Artificial Intelligence can modulation from nature a donor to the environment catastrophe into a convincing method for universal decarbonization and environmental flexibilities**.** The brave ahead of lie not in slow down novelty, nonetheless in safeguarding that invention itself grow into ecologically intellectual property.

3) As Artificial Intelligence implementation increase speed at international level, the production of e – waste or trash is a promising environmentally friendly contest. Adopting this problem expects a sequence of scientific improvement, programme interference, and environmental expenditure methods to guarantee that Artificial Intelligence advances do not arrive at the expenditure of conservational and human being wellbeing.

4) Likewise, foremost is the combination of Artificial Intelligence supremacy with environment and environmentally friendly strategy. Thru surrounding sustainability philosophy into the model, consumption, and dumping stages of Artificial Intelligence skills, the globe can substantially decrease the subdivision's carbon concentration. Endless investigation into resources – competent Artificial Intelligence representations**,** broad side computer hardware markets**,** and carbon – unbiased statistics information coordination will be necessary in the forthcoming epoch.

5) The Digital Operational Resilience Act (DORA) marks a significant milestone in the European Union's (EU) efforts to bolster the operational resilience of the financial sector in the digital age. Envisioned to comprehensively address Information and Communications Technology (ICT) risk management in financial services, DORA aims to harmonize existing regulations across EU member states. It mandates that all financial institutions within its scope build the necessary digital operational resilience, emphasizing a tailored approach for each academic's as well as progressing organizations all over Indian regions according to space and time and so on.

9.1. Focusing on Foundational Capabilities

Addressing as DORMAAI effectively, financial establishments are revealed to concentrate on mastering foundational capabilities in five key domains: Data, Operations, Risk Management, and Automation and AI (DORMAAI). By strategically combining technology in these stretches, organizations can enhance their ability to embed security, drive risk mitigation measures in Meteorological, Climatic Changes Digital Operative Flexibilities or Variations, Weather Interpretations and Forecasting Techniques, enables continuous monitoring, ensure adaptive business continuity, foster interoperability, and modernize ascendency.

9.2. Strategic Investments in Digital Operational Resilience

While the economic landscape for financial organizations is challenging, compliance with DORA is not just another costly commitment. Instead, it presents a prospect to transform compliance expenditures into deliberate investments that are intentional at delivering higher business performance. Embracing this mindset allows institutions to seek both compliance and long – term digital corporate value from their reserves in digital effective resilience.

9.3. Fostering Data Sovereignty and Digital Resilience

Protection of statistics information with technical confidence fosters statistics information sovereignty and arithmetical resilience. This means that complete control over the actual statistics information lies with the cloud user, not the cloud provider. By leveraging confidential computing and cryptography, financial establishments can answer to the rigorous constraints of DORA, confirming the extraordinary concentration of practical declaration and defensive their digital processes in a developing countryside.

In assumption, DORA is not only a fulfilment commission but a prospect for monetary organizations to advance beneficially in cardinal operating strength. By integrating trustworthy computer science and cryptanalysis into their scheme, associations can traverse the numerical signal with certainty, safeguarding statistics information secrecy, confidence, and domination in an ever – progressing alphanumeric countryside.



Figure 8. Adopt Constantly Changing World with Confidence as Avenue Trees Plantation (ATP) System for Air – Environment – Atmospheric Purification Network System Techniques and Methods for Changing Meteorological Climatic Events Like Precious Rain Fall for Agricultural as well as Farming Fields and Snow Flax Constraints for Living OR Inhabiting Healthier Lifestyle in the Long Run of Life.



Figure 9. Celebrate World, Globe OR Universal Level Environment and Heart Day Performances for Adopting Constantly Informative Techniques and Methods for Natural Ecosystem and Human Beings Living on Precious Paradise "The Earth".



Figure 10. A Poster Reproduction: Nano "AMRUT 2.0 as Self – Reliant India Mission Renovation and City Development" Assignments, Techniques for Ganga Action Plan, under National Green Tribunal (NGT) Sewage Treatment, Avenue Trees Plantation (ATP) System Purification, Eutrophication, Electro Dialysis Reversal (EDR), De – Salination, Nano Filtration, Solar and Ultraviolet Filtration, Antibiotic Medicinal Industry with Pollution Remediation, Solid Wast Control and Management on Foremost Priority Derivation, Hand Wash Hygiene, Climate Change Weather Forecasting Restraints as Adopted By WHO/ UNEP/ UNDP Organisations as per Climatic OR Meteorological Parameters Distinctions to Green House Gases, Save Energy and Carbon Dioxide (CO_2) Emission Reduction nearby 15.6 Million/ Billion/ Trillion Tons per Year Correspondingly.



Figure 11. Amalgamated World Equivalent Nano Mission and Vision Network System for Women Strength, Self Employed Women Empowerment Initiatives, Goals, Objectives as well as Outcomes in the Long Run of Life Always.



Figure 12. Vision: To be a global leader in providing high – quality training, consultation, and skill development solutions that empower individuals and organizations to achieve excellence and drive positive change. Mission: To deliver customized, innovative, and results – oriented training and capacity – building programs that foster personal and organizational growth, enhance performance, and develop sustainable skills for the future.



Figure 13. In a Collective Women Strength, Self Employed Women Empowerment Initiatives, Goals, Objectives as well as Outcomes in the Long Run of Life Always the Ecosphere Comparable Nano Mission Assignment and Grid Vision Classification for Women Power as well as Supremacy in Terms of One Women Plays Different Categories of Characters Such as a Baby Girl Child, Daughter, Sister, Mother, Wife and Professional Activities as a Glowing or Admirable Teacher, Preacher, Police, Doctor, Engineer and Scientist etc.

Abbreviations

AQI	Air Quality Index
AUW	Adulteration Underneath Watchdog
AI	Artificial Intelligence
BCSEs	Black Carbon Soot Elements
CO_2	Carbon Dioxide
CEP	Civil Erection Performance

DADB	Drenches, Aromatics, Dammars, and Bitumen
DORMAAI	Data, Operations, Risk Management, and Automation and AI
DORA	Digital Operational Resilience Act
EU	European Union's
E – Waste	Electronic Waste
EY	Ernest and Young
GCE	Good Civil Engineering
GIS	Geographical Information System
GW	Ground Water
GPS	Global Positioning System
HL	Highest Lubricant
H_2O	Sea, Pound, Stream Channel, River Water OR Aquatic System in the form of 2 Hydrogen and 1 Oxygen Molecules
ICT	Information and Communications Technology
IEA	International Energy Agency
IEE	Initial Environmental Examination
MSL	Mean Sea Level
NLI	Noise Level Index
PL	Pollution Load
RS	Remote Sensing
ROWs	Right of Ways
SBA	Swachh Bharat Abhiyan
SW	Surface Water
SMB	Scorching Mixture Bitumen
SBF	Skill Broadcast Formula
S (BP)	Surkhi (Brick Powder)

TOR	Term of Reference
UNEP	United Nations Environment Programme
VOC	Volatile Organic Compounds
WBM	Water – Bound Macadam
WQI	Water Quality Index

Authors' Contributions

Harish Kumar Gupta and Kiran Gupta are the exceptional authors. And both the authors read and approved the final manuscript.

Acknowledgments

Harish Kumar Gupta: The author is genuinely obliged to Supreme Deity Lord Ganesha, Lord Hanuman and my beloving parentages' backgrounds (Late Shri Amar Chand Gupta) and in existence with Mother Mrs. Sharda Gupta, Wife Mrs. Kiran Gupta, Master Aryan Gupta and Master Romil Gupta for their intelligence, charm, and concentration to widespread this script or research article. Exceptional acknowledges are unlimited to Dr. R. C. Sharma – Head, Dr. V. B. Gupta – Reader and Guide, Department: School of Future Studies and Planning, Devi Ahilya University (http://www.dauniv.ac.in/), Khandwa Road, Indore – 452 017, Madhya Pradesh State, India; Dr. C. V. Chalapati Rao – Co Supervisor and Scientist – F, Air Pollution Control (APC) Division, National Environmental Engineering Research Institute (NEERI), Nagpur – 440 020, Maharashtra State, India, whose innovative guidance, persistence, sympathetic, and boundless motivation have been a foundation of encouragement during this stimulating expedition of literature the calligraphy. The author also appreciatively recognizes the cooperation and collaboration of everyone the representatives of the concerned provinces. Conceptualized assets are extremely dealing with Harish Kumar Gupta, in terms of a unique biographer as well as an innovative writer. The writer inspects and authorizes to finishing script of the research paper or an article.

Kiran Gupta: First and foremost, she would like to express special appreciation and thanks to her brother, Dr. Sumit Kumar Sonkar, Assistant Professor, MNIT Jaipur, for providing guidance and experimental research work during Ph.D. accomplishment. Prof. Udaykumar R. Yaragatti, Director, MNIT Jaipur, India for providing necessary infrastructure and laboratory facilities. Thankful to guide Dr. Ranju Yadav Head of the Chemistry Department, Oriental University Indore, India. Sincere word of thanks to Mr. Praveen Thakral, Chancellor Oriental Institutes Group, Bhopal and Vice – Chancellor Mr. Gaurav Thakral for completing Ph.D. work. Heartedly acknowledge to friends Dr. Kiran Rohit, Dr. Roshani Rathore and my research group members' advice Ruchi Aggarwal, Manish Sharma, Ragini Gupta, Gunnar Westman, Nandini Tiwari, Prashant Dubey, Chumki Dalal, Faguni Agrawal, Jaider Kaushik, Kumud Malika Tripathi and Shyam Kumar Choudhary for their suggestions, discussions related to Data Curation and Methodological Tactics.

Funding

This article research or study work did not receive any identifiable funding from capital organizations in the community, business or non – profit segments.

Conflicts of Interest

Not any sympathetic prospective or forthcoming conflicts in the future will be occurred by the academic community or an organisation of interest were informed by the authors at all correspondingly.

Appendix



Figure 14. When this Precious Expensive, Valuable Heavenly Body the Earth's Natural Atmospheric – Air – Environment will Smile Formerly, Intelligently, Perceptively, Logically, Wisely, Word Widely, Globally 100 Percent Unquestionably, Categorically, Conclusively… You Will Smile Like Everything Tremendously, Moreover, and Forever in the Long Run of Life Naturally, Environmentally Ecofriendly, But Not Artificially… "YES OR NOT" … "AM I RIGHT OR WRONG" …???





https://studio.youtube.com/channel/UCTMeNIHcOhBXJILp-TD2Zdw/videos/upload?filter=%5B%5D&sort=%7B%22columnType%22%3A%22date%22%2C%22sortOrder%22%3A%22DESCENDING%22%7D

https://www.art-3000.com/picture/?iid=213345

https://www.youtube.com/feed/my_videos

References

[1] López, S., López-Sandoval, M. F. & Jung, J. K. (2021). New insights on land use, land cover, and climate change in human – environment dynamics of the equatorial andes. Ann. Am. Assoc. Geogr. [Internet] 111(4), 1110–1136. https://doi.org/10.1080/24694452.2020. 1804822

[2] Ali, T. (2023). Resilient Infrastructure: Adapting Civil Engineering to Climate Change and Natural Disasters. Liberal Journal of Language and Literature Review, 1(01), 84-91.

[3] Donthu, N., Kumar, S., Mukherjee, D., Pandey, N. & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. J. Bus. Res. [Internet] 133, 285–296. https://doi.org/10.1016/j.jbusres.2021.04.070

[4] Ferdowsi, A., Piadeh, F., Behzadian, K., Mousavi, S. F., & Ehteram, M. (2024). Urban water infrastructure: A critical review on climate change impacts and adaptation strategies. Urban Climate, 58, 102132.

[5] Pokhrel, Y. et al. (2021). Global terrestrial water storage and drought severity under climate change. Nat. Clim. Chang. 11(3), 226–233. https://doi.org/10.1038/s41558-020-00972-w

[6] Leal Filho, W., Abeldaño Zuñiga, R. A., Sierra, J., Dinis, M. A. P., Corazza, L., Nagy, G. J., & Aina, Y. A. (2024). An assessment of priorities in handling climate change impacts on infrastructures. Scientific Reports, 14(1), 14147.

[7] Mishra, V., & Sadhu, A. (2023). Towards the effect of climate change in structural loads of urban infrastructure: A review. Sustainable Cities and Society, 89, 104352.

[8] Amin, M. S. R., Tamima, U. & Amador, L. (2020). Towards resilient roads to storm-surge flooding: Case study of Bangladesh. Int. J. Pavem. Eng. [Internet] 21(1), 63–73. https://doi.org/10.1080/10298436.2018.1436706

[9] Knodt, M., Fraune, C. & Engel, A. (2022). Local governance of critical infrastructure resilience: Types of coordination in German cities. J. Conting. Cris. Manag. [Internet] 30(3), 307–316. https://doi.org/10.1111/1468-5973.12386

[10] Springer, N., Musengezi, J., Hunter, E. O., Kaiser, C. & Shyamsundar, P. (2021). Using economics in conservation practice: Insights from a global environmental organization. Conserv. Sci. Pract. [Internet] 3(5), 377. https://doi.org/10.1111/csp2.377

[11] Tian, K., Chen, Z. & Wang, H. (2021). How do citizens feel about their water services in the water sector? Evidence from the UK. Environ. Sci. Eur. [Internet] 33(1), 120. https://doi.org/10.1186/s12302-021-00562-3

[12] Sommese, F. (2024). Nature-Based Solutions to Enhance Urban Resilience in the Climate Change and Post – Pandemic Era: A Taxonomy for the Built Environment. Buildings, 14(7), 2190. Dutta, V., Singh, R., & Chakraborty, S. (2022). Urban flooding in Mumbai: Mapping the challenges of infrastructure resilience in the face of extreme precipitation. Journal of Environmental Planning and Management, 65(4), 510-530.

[13] Westermeier, C. (2020). Money is data–the platformization of financial transactions. Inf. Commun. Soc. 23(14), 2047–2063. https://doi. org/10.1080/1369118X.2020.1770833

[14] Mottahedi, A., Sereshki, F., Ataei, M., Nouri Qarahasanlou, A. & Barabadi, A. (2021). The resilience of critical infrastructure systems: A systematic literature review. Energies https://doi.org/10.3390/en14061571.

[15] Ferdowsi, A., Behzadian, K., 2024. Urban drainage infrastructures toward a sustainable future. In: Bahrami, A. (Ed.), Sustainable Structures and Buildings. Springer, Cham. https://doi.org/10.1007/978-3-031-46688-5_8

[16] The Cloudburst Management Plan. 2022. The economics of managing heavy rains and stormwater in Copenhagen [Internet]. [cited 2022 Nov 17]. Available from: https://climate-adapt.eea.europa.eu/en/metadata/case-studies/the-economics-of-manag ing-heavy-rains-and-stormwater-in-copenhagen-2013-the-cloudburst-management-plan

[17] Huddleston, P., Smith, T., White, I. & Elrick-Barr, C. (2022). Adapting critical infrastructure to climate change: A scoping review. Environ. Sci. Policy 135, 67–76.

[18] Almeida, N., Trindade, M., Komljenovic, D. & Finger, M. (2022). A conceptual construct on value for infrastructure asset management. Util. Policy [Internet] 75, 101354.

[19] Kamran, M. (2022). Role of cultural heritage in promoting the resilience of linear/critical infrastructure system with the enhancement of economic dimension of resilience: A critical review. Int. J. Constr. Manag. [Internet] 22(7), 1345–1354. https://doi.org/10. 1080/15623599.2020.1711493

Biography

Dr. Harish Kumar Gupta is an Environmental Advisor/ Manager/ Consultant – Strategy and Transactions (SaT); Educational qualification as B. Sc. (Non – Medical Subjects: PCM) from Shimla University, M. Sc. (Atmospheric and Oceanic Science) Kurukshetra University Kurukshetra (KUK), Haryana and Ph.D. (Environmental Engineering Science); Thesis Entitled: "Development and Applications of Air Environment Management Models – Cases in Regional Environmental Planning" from DAVV, Indore, and having total work experience 32 Years and 09 Months in innumerable fields like Teaching, Research, Industrial, Consultancy Projects, Freelancer, and at present days working at Ernst & Young LLP – ADVISOR/ MANAGER in "Strategy and Transactions" (SaT) at (Ruby, Dadar) Office Mumbai, India.

After completing or awarded Ph.D. degree in July 2003, Worked as Principal Investigator and Scientist Fellow for 3 Years (January 01st, 2005 to 31st, December 2007) sponsored by Department of Science and Technology, Ministry of Environment and Forest (http://www.serc-dst.org/), New Delhi, under scheme "SERC FAST TRACK PROPOSAL FOR YOUNG SCIENTISTS – (Earth and Atmospheric Sciences)" Project Entitled "A Systems Approach for Managing Air Quality in an Urban Area" at School of Future Studies and Planning, Devi Ahilya University (http://www.dauniv.ac.in/), Khandwa Road, Indore – 452 017 (M.P.) India.

SRIJAN 2016, has honoured the faculty members of Engineering and Pharmacy Colleges who have helped their students reach topmost position in the University and students have topped in the following subject in academic year 2014 – 2015: Subject Name: BE 202: CE – Energy, Environment, Ecology, and Society at the Facilitation Ceremony on 10th April 2016 at Auditorium of M. P. Council of Science and Technology (MPCOST), Bhopal (http: www.technosrijan.org) India.

Awarded and visited on date 4th to 16th October 2004, Hanimaadhoo, Republic of Maldives, Observatory for training on "Atmospheric Brown Cloud (ABC) Training School Program," announced and sponsored by (http://www – ramanathan.ucsd.edu/) UCSD ABC/ UNEP – RRCAP, USA California and Thailand; "Atmospheric Brown Cloud (ABC) Training School Program," announced and sponsored by (http://www – ramanathan.ucsd.edu/) UCSD ABC/ UNEP – RRCAP, USA California and Thailand.

Among 2000 Outstanding Scientists 2010 Award: The International Biographical Centre is situated in the historic city of Ely, near Cambridge, England. (http: www.internationalbiographicalcentre.com).

{1} Millennium Alliance (MA), Sponsored by FICCI, on Monday, 16th January 2017; Venue: Noor – Us – Sabah Palace, VIP Road, Koh– E – Fiza, Bhopal. (http://www.millenniumalliance.in).

{2} Millennium Alliance (MA), Sponsored by FICCI, on May 2nd, 2016; Venue: Courtyard by Marriott, DB City Hall, K_2, Hoshangabad Road, Opposite Hyper city, Arera Hills, Bhopal, MP. (http://www.millenniumalliance.in).

{3} Conducted by Indian Institute of Technology, Bombay at Oriental College of Technology, Bhopal (M.P.). Participated in a Two – weeks, ISTE – WORKSHOP on "Engineering Thermodynamics." OCT, Bhopal (M.P.). 10 Days from 11th to 21st December 2012; Oriental College of Technology, Bhopal (M.P.) under Topic: "Engineering Thermodynamics".

{4} Oriental College of Technology, Bhopal (M.P.). Participated in a National Conference on Advances in Engineering Research & Application (AERA – 2013, was held on March 14th – 16th, 2013 at Oriental College of Technology, Bhopal (M.P.). OCT, Bhopal (M.P.). March 14th – 16th, 2013. Oriental College of Technology, Bhopal (M.P.). under Topic: "The structure of Polysaccharide Occurring in seeds of Cassia Mimosa – Hydrolytic Study;" Authors: Kiran Gupta and Harish Kumar Gupta.

{5} Oriental College of Technology, Bhopal (M.P.). Participated in an International Conference on Advances in Engineering Research and Applications (ICAERA) held on March 25th – 26th, 2014 at Oriental College of Technology (OCT), Bhopal (M.P.). under Topic: "Advances of Power Generation and Water Resource Technologies in an Industry;" Authors: Harish Kumar Gupta and Kiran Gupta.

13th VKA – ECI Registration Format – HEC; On Dated: 28th – 02 – 2022; Category: Professional Engineer (PE); Designation: Environment Expert; Sponsored and Conducted by the Engineering Council of India (ECI); Address: 801, Hemkunt Chambers, 89, Nehru Place, New Delhi – 110019; Phone: (+91) 11 41783282, 26283282; Email: eci@ecindia.org; Website: www.ecindia.org.

Guided many M. Tech./ Ph.D. Students, Miss Anjubala Soni/ Exam/ PGT/ 2007/ 1437; Entitled: "Exponential Smoothing Techniques Using Time Series Data." Completed on Dated: 27 – 08 – 2007 from SHRI G. S. INSTITUTE OF TECHNOLOGY & SCIENCE {GSITS} INDORE (M.P.), CONTROLLER EXAM, CONTACT NUMBER: 0731 – 254 5476; Address: 23, Sir M. Visvesvaraya Marg, Indore, Madhya Pradesh – 452 003; Tel: (+91) 731 – 2582100; E – Mail: director@sgsits.ac.in. And M. Sc. in Applied Mathematics (Specialization in Computer Science); Miss Reema Joshi; Exam/ PGT/ 2006/ 1247; Entitled: "Time Series Forecasting using Smoothing Methods and Neural Networks". under Guidance of Dr. A. K. Ganguly, Professor and Head Department of Applied Mathematics and Computer Science; Completed on Dated: 25 – 05 – 2006 from SHRI G. S. INSTITUTE OF TECHNOLOGY & SCIENCE {GSITS} INDORE (M.P.), CONTROLLER EXAM, CONTACT NUMBER: 0731 – 254 5476; Address: 23, Sir M. Visvesvaraya Marg, Indore, Madhya Pradesh – 452 003, India; Tel: (+91) 731 – 2582100; E – Mail: director@sgsits.ac.in; Throughout research – oriented career he has published 3 Books and Papers (National and International) such as 18 National, 11 International, 15 National Conferences, 06 International Conferences and Published Total 50 papers on national as well as international levels in

the field of Civil and Environmental Engineering Infrastructure Development, and alongwith Management Skill Exposure in numerous arenas.

Finally, I would like to have affectionate regards and respect especially dedicated to my unforgettable father Late Amar Chand Gupta for his enormous support, fascination, consistent assistance and inspiration along with remarkable, sweet memories, who gave me strength to write and achieve study, writing and research – oriented goals or outcomes. At present the valuable family members are Mother Mrs. Sharda Gupta (76), Wife Mrs. Kiran Gupta (51), Associate Professor in Engineering Chemistry, Basic Science Department at Oriental College of Technology (OCT), Bhopal (M.P.), Presently she is perusing Ph.D. Entitled: Synthesis of Low – Cost Carbon Nanoparticles and Aerogel for Sensing and Adsorption Applications from DEPARTMENT OF CHEMISTRY ORIENTAL UNIVERSITY, INDORE, Opp. Rewati Range, Gate No.1, Sanwer Road, Jakhya, Indore (M.P.). Master Aryan Gupta (20) is Studying in B. Tech. (Mathematics and Computing), MITS, Gwalior (M.P.); Master Romil Gupta (16) is in 12th Standard Class (Non – Medical Subjects: PCM), Carmel Convent School, Ratanpur, Bhopal (M.P.) India.

Mrs. Kiran Gupta is co – author having qualifications with B. Sc. (Chemistry) And M. Sc. in (Physical Chemistry) from Kanpur University (U.P.) India and contributed to mathematical, chemical, analytical practices and approaches in Natural Environmentally Friendly System (NEFS) related issues to various forms of Climatic Variations and Meteorological Challenges (CVMC).

Research Fields*

1. Civil Construction and Environmental Engineering;

2. Air and Environmental Pollution Management;

3. Atmospheric and Oceanic Methodology;

4. Meteorological Observations, Predictions and Forecasting Techniques;

5. Civil Engineering and "Environmental Management Plans" {EMPs};

6. "Artificial Intelligence" (AI) and "Decision Modelling Tools" (DMT);

7. Mathematical Modelling and Analysis;

8. Experimental Physics and Climatic Modelling;

9. "Nural Network" (NN) and "Machine Learning" (ML);

10. Multiple Technical Applications of "Data Science Engineering" (DSE);