STM JOURNALS

Journal of
Polymer & Composites

ISSN: 2321-2810 (Online)
ISSN: 2321-8525 (Print)
Volume 13, Special Issue 3, 2025
DOI (Journal): 10.37591/JoPC

https://journals.stmjournals.com/jopc

Research JoPC

# Green Remediation and Eco-Sustainability: Enhancing Human Wellness and Welfare Through Planned Integration of Eco-Composites

Aruna Dhamija[1,*], Richa Sharma[2]

***Abstract***

*Green remediation involves assessing the complete environmental impact of implementing a solution and integrating choices to optimize the overall environmental gains from cleanup actions. This introductory guide delineates the principles of green remediation and explores possibilities for diminishing the environmental footprint of cleanup activities over the course of a project. Conserving environment is a prime concern soliciting our attention for making the external environment, including the physical, natural, social and behavioral aspects of it, uncontaminated as well as fit. With the rapid growth in population happening, specifically in the developing world, environment is deteriorating at an unprecedented and alarming rate thus adversely affecting the physical and mental health of human beings. Conserving the environment should be of critical significance for us so as to ensure that the mother-nature remains unsoiled. This paper examines the various management systems and remediation towards reducing and protecting the environment thus cutting down on the underlying catastrophic conditions. As environmental health and human health are connected, this paper highlights the various environmental pollutants which lead to health issues which, if left unchecked, can turn into a disaster. In order to eradicate the problems related to health, the best measure is to connect with nature because it is quite obvious to comprehend that what can be naturally healed could never be replaced with artificial medicines which lead to side effects. This paper talks about how conserving environment should be a concern which should feature in our to-do list in every possible aspect on the virtue of being essential for the well-being of the humankind in the long run. Novelty in this study is that developing countries (East Asia) opted to purchase technologies to control pollution for the human welfare whereas an attempt is made to describe that how the eco-composites integrating with green Remediation and Eco-Sustainability enhance in Human Wellness and Welfare. Critical success factors are discussed for the remediation towards reducing the pollution and protecting the environment namely site boundaries, water, opportunity costs, community success factors and community partnership.*

**Keywords:** Green remediation; management systems; conserving environment; eco-sustainability; eco-composites critical success factors

***Author for Correspondence**
Aruna Dhamija

[1]Professor, Department of Law, Institute of Legal Studies and Research, GLA University, Mathura, Uttar Pradesh, India
[2]Deputy Director, Department of Research Institutes & Regional Centres (RIC), Indian Council of Social Science Research (ICSSR), New Delhi, India

Received Date: November 12, 2024
Accepted Date: February 13, 2025
Published Date: April 14, 2025

**Citation:** Aruna Dhamija, Richa Sharma. Green Remediation and Eco-Sustainability: Enhancing Human Wellness and Welfare through Planned Integration of Eco-Composites. Journal of Polymer & Composites. 2025; 13(Special Issue 3): S242–S251p.

## INTRODUCTION

Conserving environment is a prime concern soliciting our attention for making the external environment, including the physical, natural, social and behavioral aspects of it, uncontaminated as well as fit. With the rapid growth in population happening, specifically in the developing world, environment is deteriorating at an unprecedented and alarming rate thus adversely affecting the physical and mental health of human beings. Environmental Health as related to human health, the different environmental pollutants such as

 

pesticides, herbicides, and fungicides is an important concern which cannot be ignored [1]. Conserving the environment should be of critical significance for us to ensure that the Mother Nature remains unsoiled. The environmental impact of Eco-composites have a lower impact in comparison to conventional materials. In terms of life cycle and biodegradability the raw materials in the form of natural fibers such as flax, hemp and bio-based resins, reducing trust on fossil fuels whereas fiberglass and carbon fiber as conventional composites require energy-intensive production. Eco-composites while manufacturing consume less energy than synthetic composites and produce fewer emissions. Eco-composites that are Biodegradable naturally can break down whereas composites that are traditional, becomes challenging to recycle and frequently finish up as waste. Therefore, eco-composites faces the challenges in performance consistency, scalability, and industrial recycling processes but offer a more sustainable substitute like durability, cost, and large-scale production. [35]

Pollutants in the environment can harm people's health or cause other sorts of damage through contaminating soil, water, turf, and other vegetation. Bird populations and non-target plants are all negatively affected by a few pollutants [20]. Causing significant harm to agriculture, resulting in significant yield, quality, and profit losses.

There are currently numerous sources of data on how conservation affects human well-being, many of which are inaccessible to policymakers and other decision-makers. Anecdotal evidence is commonly used to support or deny particular ideas or hypotheses in the lack of a more thorough evidence basis [21]. However, because this evidence is so ambiguous and open to different interpretations, decision-makers are unable to confirm relationships between human well-being outcomes and conservation interventions or to comprehend the trade-offs and synergies between various interventions when it comes to achieving particular social targets. As a result, increasing amounts of evidence synthesis on the social effects of conservation have been published. Protected areas, integrated water management, payment for environmental services, and other significant interventions have been the focus of recent systematic assessments [31].

**Research Problem 1**

What are the various management systems and remediation towards reducing the pollution and protecting the environment?

**Research Problem 2**

Are the various success factors responsible for the remediation towards reducing the pollution and protecting the environment?

Various management systems gaps were found towards in reducing the pollution and protecting the environment [30]. The planned and defined methods are discussed can be used for filling the gaps to make a system well organized. Safety is the responsibility of the public, employees, and environment are all under the get the directions of control of line management. The Department's Office of Environment, Safety, and Health performs safety policy, enforcement, and independent monitoring duties in addition to line management. Roles and obligations are crystal clear that is at all organizational levels within the department and its contractors, there must be established and maintained clear and explicit lines of authority and responsibility for maintaining safety. Level of proficiency appropriate to the duties of the employees must have the expertise, knowledge, skills, and abilities required to carry out their duties. Equilibrated priorities to meet safety, programmatic, and operational factors, resources must be widely deployed [34]. When actions are planned, the protection of the public, the workforce, and the environment must be a top focus. Establishing safety needs and norms that is before work is started, the risks associated with it must be assessed, and a set of safety rules and regulations must be established that, if followed, will give enough assurance that the public, the workers, and the environment are safeguarded from unfavorable effects. Tailored risk management measures for the work being done for that the job being done and any associated risks must be taken into account especially when designing administrative and engineering controls to prevent and reduce hazards.

 

Approval for operations is required to know the conditions and demands that must be met before operations may begin and be carried out must be properly defined and accepted [18].

The roles and expectations should be clearly defined in the policy in order to prevent or limit losses in terms of both people and money due to accidents, harmful occupational exposures, and environmental disasters, as well as to achieve and maintain legal and regulatory compliance.

Management commitment as one of the elements to develop a strong culture of safety defines examples of commitment can be supported to safeguard and protect the environment. Few ways can form methods to practice energy more professionally, manage in reducing the waste, and avoid mishaps, comply with laws, guidelines, conduct periodic programmes in the form of workshops, conferences and seminars to verify and validate.

**Objectives**

To discover the various management systems and remediation towards reducing and protecting the environment. To determine the success factors responsible for the remediation towards reducing and protecting the environment.

## LITERATURE REVIEW

The components of management system that includes planning expands the design and implementation of appropriate processes in order to be effective and to make control systems more functional to avoid hazards and risks [2]. Planning will facilitate in dealing with health risks and could be considered as the criteria for understanding management system's success or failure. Identified Objectives will assess management systems and remediation towards reducing and protecting the environment through the evaluation of risks and hazards, hazard/exposure assessments, reviews, authorizations, incident inquiries (injuries and illnesses, ecological event inquiries), emergent challenges, corporate/institutional objectives, and emergency management [13]. Additional safeguards or corrective measures are required to manage risks, reduce remediation costs, and preserve the environment.

Eco-composites as an eco-friendly alternative incorporates as natural, renewable, or recycled components that focuses on sustainability. Green Remediation and Eco-Sustainability when integrated with Eco-composites extends major contributions to human wellness and welfare. Green Remediation when involves Environmental Restoration and Pollution Reduction Eco-composites that is made from natural fibers and biodegradable resins in processes replaces the materials which is synthetic in nature in remediation technologies and act as absorbents for pollutants [36]. Eco-composites contribute in Health Benefits through Improved Air and Water Quality and further facilitate in cleaning the environment by reducing toxins and reducing in urban heat islands through green roofing and urban landscaping. Eco-composites used to maintain Sustainable Infrastructure and Housing through Eco-Friendly Construction Materials that result in healthier indoor environments as well in Energy Efficiency by offering superior insulation and energy savings. Eco-composites enhance in Mental and Social Well-Being through connecting to nature incorporate in improving and by creating calming and appealingly pleasing environment. Green remediation projects involve eco-composites through Community Empowerment (create jobs and engage communities, promoting social welfare and economic resilience). Eco-composites contribute in Climate Flexibility by safeguarding the communities from extreme weather events and lowering greenhouse gas emissions.

Current trends in eco-composites development are focusing on enhancing sustainability by incorporating renewable materials like natural fibers (e.g., bamboo, hemp) and recycled components (e.g., plastics, textiles). These materials are being used to replace traditional synthetic fibers in composites, reducing the environmental footprint [39].

 

Looking ahead, the evolution of eco-composites is poised to prioritize even greater durability, strength, and versatility. Researchers are exploring innovative manufacturing techniques to enhance these properties while maintaining eco-friendliness. Advancements in bio-based resins, the application of nanotechnology for improving material properties, and the development of novel combinations of natural fibers with biodegradable matrices are some of the key areas of focus.[37]

In terms of green remediation and eco-sustainability, eco-composites could play a crucial role in applications like soil stabilization, water treatment, and sustainable construction materials. Their ability to sequester carbon, reduce waste, and lower energy consumption during production makes them attractive for various environmental remediation projects. As technology advances, we can expect these materials to become more mainstream in contributing to global sustainability efforts.

**Critical Success Factors for the Remediation towards Reducing the Pollution and Protecting the Environment**

An Eco-Sustainability project's potential for the environment serves as the foundation for determining whether it is feasible [14]. Human well-being cannot be ascribed to an enterprise if it does not contribute to the preservation of the environment. By its very nature, enterprise development will have an influence on the environment it seeks to protect, but this impact must be minimized whenever possible. Even constructing a tiny facility to house tourists will cause environmental disruption due to changes in usage of land, waste management, and an increase in social existence.

The planned site's environmental quality, its borders, and its water status are the environmental success criteria that are crucial for the environment [4]. The planned site's environmental quality, its limits, its water status, and the opportunity costs that present resource users will bear are the environmental essential success factors. The location under consideration must support such activities to varied degrees in order to offer such experiences. For a sustainable eco-friendly project to succeed, high levels of biodiversity and a lack of human effects (roads, buildings, power lines, pollution) are essential.

Investing in a programme of environmental remediation or restoration to restore a site will be a costly endeavor with no assurance of success [33]. An eco-friendly project will become more expensive and difficult as rehabilitation activities are added. The entrepreneur will be aware of what the website can offer prospective visitors after conducting a thorough resource inventory. This preliminary inventory should collect data. This first inventory will serve as a springboard for the creation of the eco-friendly product and should collect data on water, climate, topography, and biodiversity. If environmental opportunities for sustainable, eco-friendly items are not available. In order to operate sustainably, it is essential to control how environmentally friendly items are used in the future and how that affects the environment [30]. Recreation has a significant overall influence, albeit mostly at very low use levels [6]. To create a business and activities that are within the bounds of acceptable change, an entrepreneur must be aware of the inevitable nature of change (LAC).

Understanding the natural resource variables, sociopolitical aspects, and administrative issues that were impacted by recreational usage, as well as the amount of change that is tolerable for these factors and its effects on sustainability, is the notion of LAC. Various success factors for The Remediation towards Reducing the Pollution and Protecting the Environment is depicted in Figure 1

**Site Boundaries**

As crucial as what is inside the proposed eco-friendly zone is what is outside its borders [11]. The ecological zones requires well eco-tones (edge zones) in order to thrive; they are not isolated islands. The lasting well-being of the eco-zone will benefit from the natural through-movement of mobile species at a smaller location [15]. It is advantageous to have undeveloped property outside the operation's boundaries, particularly unsuitable territory (swamps, ridges), which is not suitable for future development. Site borders that are near to human development may enhance the likelihood of human-animal conflicts and human and domestic animal incursions into the ecological reserve area.

 

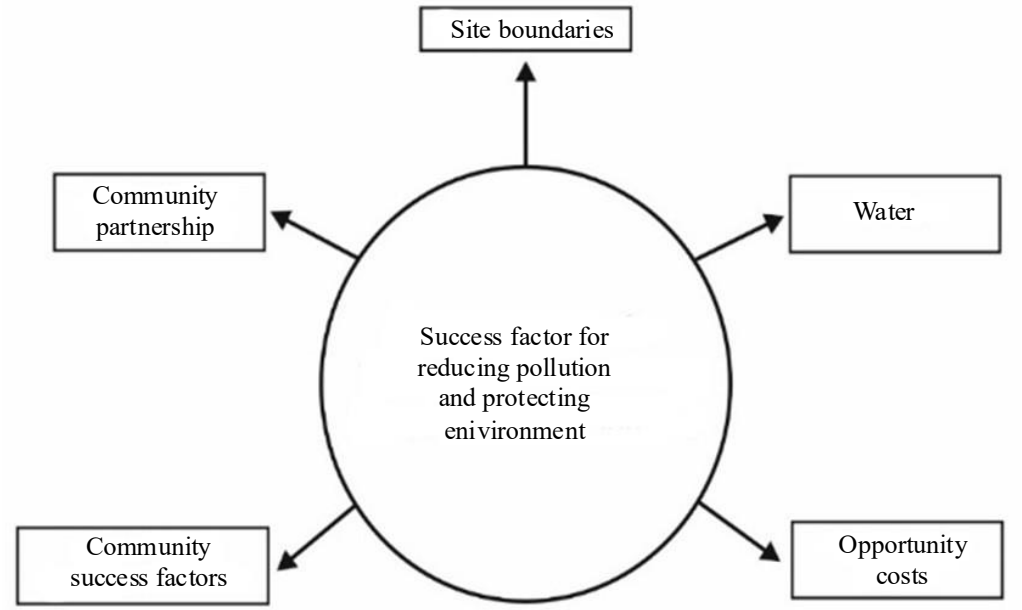


**Figure 1.** Success factors reducing the pollution and protecting the environment.

India's population is expanding quickly each year and growing populations put more strain on nearby land for agricultural, grazing, and housing construction while also raising the risk of pollution [24]. In India, urbanization is a constant trend. The main threat to biodiversity, which serves as the main source of resources for environmental degradation, is habitat loss brought on by human changes to the environment (mine, agriculture, settlement, and classes introduction).

**Water**

No matter the type of facility being suggested, visitor's necessity access to hygienic water because it is a fundamental human need. In addition to the growing need for clean water from visitors, environmentally responsible waste management techniques are also required [8]. Costly and introducing environmental stresses through noise, emissions, and erosion from tyre tracks is trucking in water. A site near a water supply needs to be shielded from contamination both upstream and for users downstream. Drought conditions in some areas make it more difficult for local farmers, livestock owners, and ecotourism businesses to get enough water [26]. Water disputes heighten underlying tensions, which in semi-arid areas might result in bloodshed.

The firm will have the chance to reduce its risk for pollution and other disturbance by defining its activities along the recreation opportunity spectrum (ROS). According to certain theories, wilderness regions are often categorized as non-motorized primitive or semi-primitive settings [16]. These classifications call for a largely natural or minimally changed environment, little user contact, and the exclusion of motorized vehicles.

**Opportunity Costs**

Any gains from the target eco-zone that will be forgone by the area's present resource consumers might be viewed as opportunity costs [25]. These resource consumers come in all shapes and sizes, and the majority are taken into account in the planned development. The amount of resources used will depend on the nearby human population and the value of the resources that are unique to the site. Unauthorized activities are only a few examples of resource uses that are especially intensive and inflict extensive ecological harm. These activities also help individuals support their daily lives, therefore if they are prohibited, the people who benefit from them will lose out on opportunities to make money. The funds allocated to the ecotourism project won't be able to compensate this lost income [22].

 

The enforcement of anti-poaching measures in various southern African regions results in direct, occasionally violent encounters with bush meat poachers. Additionally, customers of poached meat in the area must pay more for commercial meat, which may not even be offered there [17]. In order to avoid conflict, a project might need to adopt resource sharing rather than reducing resource exclusivity. The problem of equality is crucial since it is possible for the poor to shoulder the majority of the expenditures associated with ecological safeguard while the wealthy (guests) gain [10]. The implementation of resource sharing and struggle management depends heavily on the connection with the partner community.

**Community Success Factors**

Berkes (2007) observed that the community conservation initiatives are predicated on the idea that values associated with resource conservation will affect attitudes toward resource use. Many human development initiatives have been started as local community and private business partnerships where the community chooses not to administer the land in exchange for developers paying a lease charge. This tactic might be the main cause of failure.

It has been proposed that community-based tourism should come from within the community rather than from outside entrepreneurs as a method to avoid this land for money arrangement [3].

Its strategy is a reliable bottom-up way to build a business at the local level, and non-governmental organizations (NGOs) are able to help with this development. Fair participation of the community and an entrepreneur would yield a higher probability of success than a strictly community/NGO partnership, whether the entrepreneur is internal (local) or external [27].

For social sustainability in conservation the projects working under institutions with complicated growth creativities, according to Kabraji, "depends not so much on the volume of human or financial resources available, but on their successful management." An experienced businessperson is aware of the guidelines needed to run a successful company and also knows how to control the business's financial risk. The essential players in selecting and carrying out fruitful business prospects are entrepreneurs [7].

Ecotourism enterprises must be financially feasible for the stakeholders even though they are socially and environmentally responsible. Any new venture's success and its capacity to attain economic sustainability depend heavily on entrepreneurial inventiveness [12]. The organization will be able to provide value for its clients, the environment, and the community it operates within if it can adapt to market principles and has strong business logic. The potential for a healthy interaction between the company and the community, community poverty and social inclusion, the definition of the community, and the relationship that can be created with the community are all crucial success criteria for the community.

**Community Partnership**

The relationship established between a business owner and a community will determine whether an eco- friendly initiative succeeds or fails. In terms of community conflict, a fair and open community cooperation will significantly reduce the risk associated with the business [19]. Lack of consideration for stakeholders' involvement, particularly during stages of planning and also when stakeholders holds opposing views towards the organization on resource uses or remuneration can result in conflict. It is crucial that the businessperson appoint a reputable community development expert as a liaison when assessing the possibility for solid and open community collaborations. The necessity that the community development specialist be objective and capable of representing the welfares of the community to the businessperson may be a major roadblock for many entrepreneurs.

The same reason it would be ideal to have an entrepreneur with market understanding participating in the project is why this objective feedback is required: many communities lack the knowledge or expertise to achieve their involvement in an equitable manner. The businessperson will also lack the

 

cultural or developmental expertise necessary to determine accurately how the community collaboration should function. A community development specialist might be contacted through local NGOs or through a private consulting arrangement. NGOs are crucial partners in creating a community project due to their expertise as the interested parties gathers the forum create a bridge for exchanging the information among diverse groups of interested parties [9].

## METHODOLOGY

The research design employed in this study is a qualitative approach. It involves a comprehensive examination of various management systems and strategies for environmental conservation, with a specific focus on developing countries in East Asia. The study utilizes secondary data sources to analyze the effectiveness of different approaches towards reducing pollution and protecting the environment. A comprehensive review of existing literature is conducted to gather information on environmental pollutants, health impacts, conservation strategies, and success stories.

This informs the development of a theoretical framework for the study relevant government reports, policies, and regulations related to environmental protection and pollution control are analyzed to understand the institutional framework and its effectiveness. The study is guided by the Environmental Health Paradigm, which asserts the interconnectedness of environmental health and human well-being. This framework highlights the detrimental effects of environmental pollutants on physical and mental health, emphasizing the need for effective conservation strategies.

## RESULTS AND DISCUSSION

This paper examines the various management systems and remediation towards reducing and protecting the environment thus cutting down on the underlying catastrophic conditions. As environmental health and human health are connected, this paper highlights the various environmental pollutants which lead to health issues which, if left unchecked, can turn into a disaster. To eradicate the problems related to health, the best measure is to connect with nature because it is quite obvious to comprehend that what can be naturally healed could never be replaced with artificial medicines which lead to side effects [5]. This paper will talk about how conserving environment should be a concern which should feature in our to-do list in every possible aspect on the virtue of being essential for the well-being of the humankind in the long run [28]. There are specific environmental or health issues are addressed through the uses of eco-composites in green remediation. It has observed that to remediate contaminated soil and water Eco-composites are used to absorb pollutants or facilitate their degradation. Compared to traditional remediation methods, eco-composites reduce impact on environment by biodegradable or recyclable, reducing waste generation and resource consumption. The other method when effectively clean up the contaminants eco-composites helps in restoring the ecosystems healthier. Risks for workers and communities' safety can reduce using eco-composites by immobilizing contaminants avoiding them from dispersal into surrounding areas.

## CONCLUSIONS

The literature study reveals that diseases linked to environmental contaminants have a significant economic impact as well as a societal impact owing to from productive work and school [23]. Despite the difficulty of eradicating the problem it is also required to know the cause of economic damage towards mankind or also how it is hazardous to the health of domestic animals or humans. To manage the catastrophic situation could be followed by means of awareness programs, technology, cleaner production and consumption. There is a call for sustainable environment towards mankind every country required to serve the purpose in adherence to the enactment of laws [29]. As every country is rushing or striving for lesser down of carbon emissions there is a need to be a responsible citizen of country for that self-realization is must as well as the need for awareness creation for sustainable development. The care should be taken when creating and distributing original controls and remedial actions through proper planning, management commitment and creating standard health policy [32]. Principally, eco-composites acts in associating innovation in technology and environmental stewardship. This aligns in promoting economic stability, social equity and focusing on improving human health issues [38].

 

## LIMITATIONS AND FUTURE SCOPE

The limitations of this study reveals that this study can adopt other success factors to provide broader view. An empirical research through traditional research through various experiments and observations will enhance in developing new and unique methods for the welfare in human aspect.

The future scope of this study could provide novel responses to environmental regulations in one of two ways. The first is the organizations simply become more knowledgeable about how to combat pollution in line with a New Conception of the Environment-Competitiveness Relationship, which includes handling toxic materials and emissions and finding ways to cut back on the production of dangerous or poisonous chemicals. This kind of innovation lowers the expense of adhering to pollution control regulations as well as process many different kinds of hazardous waste properly and efficiently and leads to human welfare. The second innovative type discusses the effects of the environment on enhancing the impacted product and/or the processes that are connected to it, and it makes the assertion that environmental regulation can genuinely boost industrial competitiveness.

The other scope of this study could be used for comparing for external benchmarking; related to SMEs; management decisions; provide efficacy for operational improvement; to generate potential for data aggregation and standardization; to create effectivity for identifying novel items or solutions for eradicating the problem of economic damage towards mankind.

For broader knowledge on innovation offsets to protect environment, the Management Institute for Environment and Business provided case studies at international level and sponsored by the EPA for industries and entire sectors. Further, significantly affected by environmental regulation demonstrates few innovation strategies to protect environment through pulp and paper, paint and coatings, electronics manufacturing, refrigerators, dry cell batteries, and printing inks which in turn exceed the cost of compliance. This will increase in companies' advancement and the regulations become more sophisticated and shed old mindsets.

## REFERENCES

1. Akhtar, N. and Mannan, M.A.U., 2020. Mycoremediation: Expunging environmental pollutants. Biotechnology Reports, 26, p.e00452.
2. Barlishen, K.D. and Baetz, B.W., 1996. Development of a decision support system for municipal solid waste management systems planning. Waste Management & Research, 14(1), pp.71-86.
3. Akhtar, F., 2007. Community-based conservation in a globalized world. Proceedings of the National academy of sciences, 104(39), pp.15188-15193.
4. Bullard, R.D., 1993. Anatomy of environmental racism and the environmental justice movement. Confronting environmental racism: Voices from the grassroots, 15, pp.15-39.
5. Chawla, L., 2020. Childhood nature connection and constructive hope: A review of research on connecting with nature and coping with environmental loss. People and Nature, 2(3), pp.619-642.
6. Cole, D.N., 1985. Management of ecological impacts in wilderness areas in the United States. In: The ecological impacts of outdoor recreation on mountain areas in Europe and North America (Edited by NG Bayfield and GC Barrow). Management of ecological impacts in wilderness areas in the United States. In: The ecological impacts of outdoor recreation on mountain areas in Europe and North America (Edited by NG Bayfield and GC Barrow)., (9), pp.138-154.
7. Dai, O. and Liu, X., 2009. Returnee entrepreneurs and firm performance in Chinese high-technology industries. International Business Review, 18(4), pp.373-386.
8. Davis, G. and Song, J.H., 2006. Biodegradable packaging based on raw materials from crops and their impact on waste management. Industrial crops and products, 23(2), pp.147-161.
9. Drumm, A., & Moore, A., 2005. An introduction to ecotourism planning. Volume I: Publication for Capacity Building, The Nature Conservancy, 2005, Worldvide office, Arlington, USA.
10. Ferraro, G. and Brans, M., 2012, February. Trade-offs between environmental protection and economic development in China's fisheries policy: A political analysis on the adoption and implementation of the Fisheries Law 2000. In Natural Resources Forum (Vol. 36, No. 1, pp. 38-49). Oxford, UK: Blackwell Publishing Ltd.

 

11. Fortin, M.J., Olson, R.J., Ferson, S., Iverson, L., Hunsaker, C., Edwards, G., Levine, D., Butera, K. and Klemas, V., 2000. Issues related to the detection of boundaries. Landscape ecology, 15, pp.453-466.
12. Fuller, B., Liu, Y., Bajaba, S., Marler, L.E. and Pratt, J., 2018. Examining how the personality, self-efficacy, and anticipatory cognitions of potential entrepreneurs shape their entrepreneurial intentions. Personality and Individual Differences, 125, pp.120-125.
13. Gandini, A., Quesada, L., Prieto, I. and Garmendia, L., 2021. Climate change risk assessment: A holistic multi-stakeholder methodology for the sustainable development of cities. Sustainable Cities and Society, 65, p.102641.
14. Garcia, D.A., Cumo, F., Sforzini, V. and Albo, A., 2012. Eco friendly service buildings and facilities for sustainable tourism and environmental awareness in protected areas. WIT Transactions on Ecology and the Environment, 161, pp.323-330
15. Gopal, B., 1994. The role of ecotones (transition zones) in the conservation and management of tropical inland waters. Internationale Vereinigung für Theoretische und Angewandte Limnologie: Mitteilungen, 24(1), pp.17-25.
16. Hendee, J.C., Stankey, G.H. and Lucas, R.C., 1990. Wilderness management (No. AS 50909). North American Press.
17. Hübschle, A., 2017. On the record: interview with Major General Johan Jooste (retired), South African National parks, head of special projects. South African Crime Quarterly, 60, pp.61-68
18. Koehn, E.E. and Datta, N.K., 2003. Quality, environmental, and health and safety management systems for construction engineering. Journal of Construction Engineering and Management, 129(5), pp.562-569.
19. Leonidou, L.C., Christodoulides, P. and Thwaites, D., 2016. External determinants and financial outcomes of an eco-friendly orientation in smaller manufacturing firms. Journal of Small Business Management, 54(1), pp.5-25.
20. Mahmood, I., Imadi, S.R., Shazadi, K., Gul, A. and Hakeem, K.R., 2016. Effects of pesticides on environment. Plant, soil and microbes: volume 1: implications in crop science, pp.253-269.
21. McKinnon, M.C., Cheng, S.H., Dupre, S., Edmond, J., Garside, R., Glew, L., Holland, M.B., Levine, E., Masuda, Y.J., Miller, D.C. and Oliveira, I., 2016. What are the effects of nature conservation on human well-being? A systematic map of empirical evidence from developing countries. Environmental Evidence, 5(1), pp.1-25.
22. Medina, L.K., 2005. Ecotourism and certification: Confronting the principles and pragmatics of socially responsible tourism. Journal of Sustainable Tourism, 13(3), pp.281-295.
23. Murray, K.E., Thomas, S.M. and Bodour, A.A., 2010. Prioritizing research for trace pollutants and emerging contaminants in the freshwater environment. Environmental pollution, 158(12), pp.3462-3471.
24. Nagdeve, D.A., 2007. Population growth and environmental degradation in India. International Institute for Population Sciences. http://paa2007. princeton. edu/papers/7192. Department of fertility studies, Govandi station road, Deonar, Mumbai, 400, p.088.
25. Norton-Griffiths, M. and Southey, C., 1995. The opportunity costs of biodiversity conservation in Kenya. Ecological economics, 12(2), pp.125-139.
26. Parker, S. and Khare, A., 2005. Understanding success factors for ensuring sustainability in ecotourism development in southern Africa. Journal of ecotourism, 4(1), pp.32-46.
27. Peredo, A.M. and Chrisman, J.J., 2006. Toward a theory of community-based enterprise. Academy of management Review, 31(2), pp.309-328.
28. Potts, S.G., Imperatriz-Fonseca, V., Ngo, H.T., Aizen, M.A., Biesmeijer, J.C., Breeze, T.D., Dicks, L.V., Garibaldi, L.A., Hill, R., Settele, J. and Vanbergen, A.J., 2016. Safeguarding pollinators and their values to human well-being. Nature, 540(7632), pp.220-229.
29. Pilat, D., 2009. Sustainable manufacturing and eco-innovation synthesis report framework, practices and measurement sustainable manufacturing and eco-innovation framework, practices and measurement synthesis report organisation for economic Co-operation and development 4@ sustainable manufacturing and eco-innovation.

 

30. Schneider, J., Ghettas, S., Merdaci, N., Brown, M., Martyniuk, J., Alshehri, W. and Trojan, A., 2013. Towards sustainability in the oil and gas sector: benchmarking of environmental, health, and safety efforts. Journal of Environmental Sustainability, 3(3), pp.6.
31. Wendland, K.J., Honzák, M., Portela, R., Vitale, B., Rubinoff, S. and Randrianarisoa, J., 2010. Targeting and implementing payments for ecosystem services: Opportunities for bundling biodiversity conservation with carbon and water services in Madagascar. Ecological economics, 69(11), pp.2093-2107.
32. World Health Organization, 2013. Global action plan for the prevention and control of noncommunicable diseases 2013-2020. World Health Organization.
33. Yin, R. and Yin, G., 2010. China's primary programs of terrestrial ecosystem restoration: initiation, implementation, and challenges. Environmental management, 45, pp.429-441.
34. Zohar, D., 2002. The effects of leadership dimensions, safety climate, and assigned priorities on minor injuries in work groups. Journal of organizational behavior, 23(1), pp.75-92.
35. Mylsamy, B., Aruchamy, K., Shanmugam, S. K. M., Palanisamy, S. and Ayrılmis, N., 2025. Improving performance of composites: Natural and synthetic fibre hybridisation techniques in composite materials–A Review. Materials Chemistry and Physics, pp. 130439.
36. Kar, A., Saikia, D., Palanisamy, S. and Pandiarajan, N., Effect of fiber loading on the mechanical, morphological, and dynamic mechanical characteristics of Calamus tenuis fiber reinforced epoxy composites. Journal of Vinyl and Additive Technology.
37. Nair, A.B., Sivasubramanian, P., Balakrishnan, P., Ajith Kumar, K.A.N. and Sreekala, M.S., 2013. Environmental effects, biodegradation, and life cycle analysis of fully biodegradable "green" composites. Polymer composites, p.515-568.
38. Do Quang Minh, N.H.T., 2020. Characteristics of novel geopolymer composites synthesized from red mud and diatomaceous earth in autoclave conditions without using alkaline activators. Journal of Polymer & Composites, 8(3).
39. Sumesh, K.R., Ajithram, A., Palanisamy, S. and Kavimani, V., 2024. Mechanical properties of ramie/flax hybrid natural fiber composites under different conditions. Biomass Conversion and Biorefinery, 14(23), pp.29579-29590.

 