

## **“Combination of Law & Biotechnology to Transform the Concept of Ecotourism from ‘A Fable’ to ‘A Reality’ in India – A Need of the Hour”**

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### **ABSTRACT**

An irony it is to be called as the issue of ecotourism, despite remaining as a dormant challenge since 1980s, has been lately in news as a trending thought due to the recent killing of American Tourist John Allen Chau by the Sentinelese Tribe. Delving deeper into the trend, this incident evinces to be a mere symptom of longstanding hazards caused by the commercial tourism till date. At this juncture, to maintain a balance between the rapid growth of tourism sector and conservation of wildlife and biodiversity, the concept of ecotourism urges to be emerged and endorsed as a sound approach. Although in India there are numerous policies and legislations including Environmental Protection Act (1986), Wild Life Protection Act (1972), Biodiversity Act (2002) etc. and moreover, the Constitution itself acting as safeguards to protect eco-tourism areas from the bio-destructive activities like poaching, pet trade, livestock grazing and interrupting tribal lives; the test of effectiveness of such laws speaks otherwise in reality. This research paper thus evaluates and emphasizes that - not only by enforcing rigid procedural and penal laws, but the promotion of Ecotourism in India is also required to be backed by the proper application of biotechnology. Bioprospecting the protected areas by utilizing forest resources resulting to the creation of eco-friendly employment opportunities to the local forest tribes, introducing and bioremediating the bio toilets as well as solid and liquid waste disposal methods, developing the devices to track traffic movements and animal passages in the protected areas, conducting environmental impact assessment at regular intervals and last but not the least, the establishment of an active fire prevention system are few of the recommendations proposed in this Research Paper, in addition to addressing a sunshine ecotourism-centric legislation as a need of the hour.

**Keywords:** Ecotourism, Draft Legislation, Biotechnology, Bioremediation, Sustainability,

### **INTRODUCTION**

*‘Nature provides a free lunch but only if we control our appetites’* – as William Ruckelshau expressly emphasizes on the sustainable behaviour of the human being so as to conserve the nature and its resources in an efficient way, the concept of eco-tourism likewise propounds the balance between the development in tourism sector and the Sustainable use of wildlife and environment. From the socio-ecological aspect, the eco-tourism plays the role of a catalyst in the arena of biodiversity by justifying its preamble to drive people close to the biosphere. In the awake of commercialization, when the mass tourist destinations are suffering from destructive

development followed by extreme pollution-hike and thereafter, digging their own graves; the word 'eco-tourism' by itself, brings a fresh aura in terms of an aim to prevent the degradation of environment with regard to the tourism sector. The emergence of eco-tourism, although, relates long back to 1980s after the enactment of Wildlife Protection Act, the road of eco-tourism is yet to be constructed at full swing till date. The recent killing of American tourist John Allen Chau poses a burning question on the increasing necessity of Eco-tourism as a need of the hour with respect to protected and conservatory areas in India. Despite having the regulatory measures such as the Biodiversity Act (2002), the Wildlife Protection Act (1972), the Environmental Protection Act (1986), the Forest Conservation Act (1980), Hazardous Waste Management Rules, Coastal Zone Regulations etc. in existence, the rate of promotion of Eco-tourism in India is largely victimized by high consumer satisfaction and the incessant growth of a market-centric profit-making motive and hence, clearly indicates the sheer inefficacy of the existing legislations to prioritize the sustainable tourism over destructive tourism. Considering the rapid economic progress on one hand and ineffectiveness of the legislative instruments in conservation of ecological system on the other hand, the concept of eco-tourism is evinced to be the prime solution to accelerate the pace of sustainable eco-friendly tourism. However, in absence of any specific legal instruments, the promotion of eco-tourism shall by no stretch of imagination be addressed by a sunshine legislation governing the tourist spots including the protected areas in India. Although the Central Government in the year 2015 declared a new to be drafted soon, it has not been materialized yet.

At this juncture, application of Ecotourism practices and its positive impact on wildlife conservation as well as garnering the consumer surplus do not only require a new legislation to be addressed, but it must also be strengthened by proper innovation and utilization of biotechnology in order to ensure the smooth functioning of such eco-tourism practices in India. The present research paper aims to focus on strengthening the back-up of Eco-tourism in India and its protected areas by way of recommending various biotechnological methods and an ecotourism-centric enactment as the guiding instrumentalities to the effect.

### **RESEARCH OBJECTIVES**

- To determine the current status of ecotourism as a growing concept in India
- To critically analyze the obstacles in existence and the changes required to be introduced in the contemporary ecotourism regime in India
- To recommend a viable solution to the Central Government as an assistance to draft the new law for regulation and transformation of ecotourism from a mere concept to a reality

### **RESEARCH QUESTIONS**

1. How the Ecotourism has been evolved and emerged in India as a growing concept?
2. Whether the road of Ecotourism in India is a fable or well-regulated enough in reality?
3. How can the concept of Ecotourism be transformed into a reality with regard to protected areas in India with the help of a new law and biotechnological innovations?

## **RESEARCH METHODOLOGY**

The present research has been conducted with the help of Acts, Rules, Regulations, Precedents by the Courts and Tribunals, Articles and Commentaries. Hence, the Doctrinal methodology has been adopted to form the database and conduct the research for deriving into conclusions. As the primary tools of research, the bare acts, rules, regulations and the precedents given by the Courts and Tribunals have been utilized. For the purpose of secondary research, the articles and commentaries have been of use as secondary tools.

## **LIMITATIONS TO THE RESEARCH**

The present research is limited to the analysis of the concept of Ecotourism and its current status in India and an attempt to analyze the conflicts existing in the no-law regime of ecotourism with regard to protected areas in India. This study proposes unique methods in terms of law and biotechnology as a collaboration venture to efficiently regulate ecotourism sector and does not focus on other categories of likewise tourism such as sustainable tourism, green tourism etc.

## **ANALYSIS**

### **HOW THE ECOTOURISM HAS BEEN EVOLVED AND EMERGED IN INDIA AS A GROWING CONCEPT?**

Since the Vedic era, the worship and conservation of Mother Nature was ubiquitous as an intrinsic part and parcel of Indian Culture, with a principle of sustainable creativity underlying it. As the modernization conquers the contemporary millennium, human kind is steadfastly moving towards an all-round economic, technological and industrial development wrapped with an eco-destructing outlook. Tourism, being a growing segment, does not help but being victimized by the same trap of commercialization. However, the concept of eco-tourism emerges along with the rise of environmental awareness in the field of global warming, pollution and rapid decay of natural resources and thus relates back to drafting of the Indian Constitution along with its Parts IV and IVA towards the protection of environment and wildlife, and the Stockholm Conference on Human Environment, 1972 followed by enactment of numerous Environment-friendly legislations and ratification of environment treaties by India. As a result, today, the tourism sector in India is very much axiomatic in the national parks, wildlife sanctuaries, and biosphere

reserves in terms of establishing meaningful connection between nature, mankind and wildlife and helping the earth to be a sustainable residence. Hence, as the tendency towards gaining a diversified nature experiences has been increasing gradually, a new travel regime has evolved in response to this increasing awareness towards the balance between a nature tourism and a less capital-centric tourism, called ecotourism

Travelling across the horizon of ecotourism, it is therefore the type of tourism, the emergence and evolution of which is highly influenced by the man-made development issues adversely affecting the nature and its resources. In India, despite the ecotourism being in existence since ages as an inseparable part of the cultural heritage, the ecotourism as a concept has received due emphasis in recent times with reference to revolution formed against the ill-effects of urbanization on the human health and environment. Concept of Ecotourism in India is thus easily distinct from the outdoor tourism and nature tourism due to presence of the key factors such as conservation of wildlife, community participation and education of ecotourism as a course of awareness, duty of the eco-tourists not to utilize wildlife resources, and lastly, capital investment in the sustainable eco-friendly technologies to bring both the commercial tourism and nature tourism in an equilibrium state etc.

Delving deeper into the evolution of ecotourism as a concept, the term ‘Ecotourism’ was first coined by a Mexican Environmentalist Sir Hector Ceballos Las Currain in 1983. Although the term was initially adopted as to use in explaining nature-based educational tourism encroaching on the protected and unpolluted areas, the concept later evolved as a scientific proposal to develop sustainable tourism and invent eco-friendly products and method to boost the field of sustainable tourism. The Ecotourism, as the Green Globe 21 International Ecotourism Standard has adopted, is defined<sup>1</sup> as “*Ecologically sustainable tourism with a primary focus on experiencing natural areas that fosters environmental and cultural understanding, appreciation and conservation.*” Today, an eco-tourism venture can easily be recognized, if it contains of the following essential elements:

- Nature-centric
- Eco-friendly
- Local tribes and Wildlife are benefitted
- Education and Awareness being the significant components to research, admire the experience the beauty of wild life including animals, plants and tribes
- Usage of Biotechnologies to bring sustainable development

Besides, Ecotourism also projects the integration between rural and urban development by generating revenues for the purpose of promotion and conservation of natural resources such as

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<sup>1</sup> International Eco Tourism Standards , available at <http://www.ecoindia.com/education/international-standards.html> (Last accessed on January 19, 2019)

Air, Water, Forest, Flora and Fauna, integrity between local people and eco-tourists etc. and protracting the scope of employment opportunities for the local tribes and rural lives. Hence, Eco-tourism in India is aimed at achievement of sustainability in terms of economic, environment, cultural integrity and educational advancement and thus mainly classified into three types of tourism, namely, adventure tourism, cultural heritage-based tourism and nature-based tourism. India, a country full of diversity in respect of vast natural phenomena and environment, offers an immense scope to ecotourism to become one of the prominent ecotourism destinations. The places<sup>2</sup> such as the Sunderbans (West Bengal), the Lohtak Lake (Manipur), the Kazhiranga National Park (Assam), The Plage Paradiso Sea-beach (Pondicherry), Thenmala-Munnar-Thekkady-Kuruva etc. are some of the destinations indicating huge potential to become the ecotourism spots in India. Needless to say that the Indian States like Kerala, Sikkim, Assam, Meghalaya etc. stand as the pillar of success for attaining the wide growth and development in ecotourism in true sense. But on the other hand, in the major parts of this sub-continent, there is yet to construct the road of progress of eco-tourism, due to lack of awareness or inefficiency of existing legal framework or the shortage of bio-technologies.

### **WHETHER THE ROAD OF ECOTOURISM IN INDIA IS A FABLE OR WELL-REGULATED ENOUGH IN REALITY?**

India, being a country of crores of people, is rich in diversity in terms of having the Great Himalayas zone, the Southern Peninsula region, plains created by the River Ganges, wide sea coasts, the Thor desert etc. altogether. With an aim to conserve the environment and preserve the integrity of such rich diversity, the Constitution of India, on one hand, endeavoured to protect the wildlife and environment, through the DPSP and the Fundamental Duties from being destroyed by the human kind and the Government of India, on the other hand, has attempted to establish a defined framework to encourage the promotion of ecotourism in those protected biodiversity places in India. It is well-evident that the tourism centers in India have already initiated their journey of envisaging ecotourism by way of organizing various ecotourism activities such as jungle safari, tribal heritage etc. for the nature-loving travellers. However, in India, numerous legislations, rules and policies are in existence in order to serve the purpose of conservation of environment and maintenance of a sustainable development, but there is no single legislation revolving around the management and functioning of ecotourism in protected areas till date.

As of now, the national legislations especially dealing with ecotourism are rare in India. Over the past decades, the environmental laws were enacted by the Indian Legislature to regulate the rate of pollution and balance the ecosystem, thereby indirectly applicable to fulfil the need of

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<sup>2</sup> Dr. Ashok Kumar, *Eco-Tourism In Emerging Tourism Industry: An Analysis Study Of Indian Economy*, Chronicle Of The Neville Wadia Institute Of Management Studies And Research, April, 2011

ecotourism in India. Following are some of those existing environmental laws<sup>3</sup> acting as substitutes of an ecotourism-centric legislation and hence, evince the high need of an enactment to this effect:

1. The Wildlife (Protection) Act, 1972 – Although this statute, along with wildlife conservation, allows the tourists in protected areas for wildlife photography or any kind of education or scientific research purpose, but with the rapid change of the ecotourism sector and in the absence of any express provisions for planning and management of ecotourism and ecotourism activities in protected areas, the due significance of this Act has been gradually decreased. An amendment thus is a need of the hour in this statute to bring the required changes to operate ecotourism effectively.
2. The Environmental Protection Act, 1986 and its notifications – This Act provides for various principles and norms to protect the environment and recognizes the environmental-clauses of the Constitution in it. This Act, however, does not directly provide for any regulation to manage the ecotourism in protected areas. But under this Act, the Coastal Regulation Zone Notification (1991) as well as the Notification (2006) on Environmental Impact Assessment are issued and relevant to the growth of ecotourism sector in India. The former is a guiding factor when it comes to the activities in anthropogenic nature across the coastal lines, but does not carry much weight due to the dilution cause by 20 amendments in it. The latter is a decessor of the 1991 Notification and expressly omitted the EIA for tourism purposes as provided in the 1991 Notification.
3. The Forest Conservation Act, 1980 – This legislation specifically prohibits the forest to be conserved for any non-forest activities. Although with the time changes, the ecotourism is being permitted in the forests, but there is yet any development made in the act for regulation of such ecotourism in forests areas.
4. Other Ecotourism Policies and Guidelines<sup>4</sup> – Apart from the aforementioned legislations, there is no legislation in India touching the essence of ecotourism as of now, although with regard to polices or guidelines, we may witness several ecotourism related policies and guidelines issued by the Central Government to flourish the concept of ecotourism through a substitute but comparatively weak foundation. The Ecotourism Policy and Guidelines, 1998<sup>5</sup> is the only ecotourism policy in effect in national level which endeavours to promote ecotourism depending upon Government, the operators or any developers, visitors/tourists, supplier of equipment, the NGOs, scientific research

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<sup>3</sup> Ms. Archana K, *Menace of Ecotourism and The Role of Legislations in India*, Bharati Law Review, Octo-Dec, 2013, available at: <http://docs.manupatra.in/newslines/articles/Upload/F503F69B-EBA6-4B5F-8457-A5CA2484D747.pdf> (Last accessed on January 28, 2019)

<sup>4</sup> *ibid*

<sup>5</sup> Kamble Chandrakant Namdeo, *Legal Regulation of Ecotourism in India*, IJRSSIS, Vol. V (1), Jan 2017: 12-16, ISSN 2347 – 8268, available at: [https://www.ijrssi.in/upload\\_papers/080320171240112.pdf](https://www.ijrssi.in/upload_papers/080320171240112.pdf) (Last Accessed on January 28, 2019)

organizations, and other sponsors operate ecotourism by way of laying down certain principles for interaction and engagement with local tribes, settlement of issues between tourism, environmental and other socio-cultural conflicts and livelihood. The policy nonetheless fails to effectively implement the linkage between ecotourism and local communities and does not adjust with their customs or lifestyle or traditions at all. In the periphery of ecotourism, although the NBSAP (National Biodiversity Strategy & Action Plan) is another key instrument to conduct assessment for measuring the impact of tourism in ecological system, it has been rejected by the Ministry of Environment and Forests on the ground of containing unscientific principles in it.

Therefore, in the event of such lack of any specific enactments, rules or policies governing the ecotourism in protected areas in India, the Government of India is utilizing the general tourism policies and environmental policies such as the National Environmental Policy, Andaman and Nicobar Islands Tourism Policy etc. as substitute guidelines for ecotourism. Hence, due to lack of enough enforcement in this area and absence of any supervisory or monitoring mechanism for implementation of standards to be maintained in endorsement of ecotourism, the regime of ecotourism in India demands for a need of massive transformation to bring it into reality. Indian judiciary has also endeavoured to promote the spirit of tourism through landmark judgments. In '*Union of India v. Kamath Holiday Resorts Ltd.*<sup>6</sup>' the Supreme Court observed that: "*All current streams of thought lead towards protection of environment and preservation of forest wealth. On the other hand there are demands in justification of other use telling on the forests. A balance would have to be struck in a cool and dispassionate manner*"

## **RECOMMENDATIONS**

### **HOW CAN THE CONCEPT OF ECOTOURISM BE TRANSFORMED INTO A REALITY IN PROTECTED AREAS OF INDIA WITH THE HELP OF A NEW LAW AND BIOTECHNOLOGICAL INNOVATIONS?**

Ecotourism, coupled with a purpose of having the minimal destruction on the natural scenery, urges for catering various thresholds in terms of impact on natural, economic and socio-cultural fabric. From the installation of sewage and solid-liquid-gaseous waste disposal technology to the enforcement of congenial legislations specifically for ecotourism – India recognizes the transformation of the concept of ecotourism into reality is a national need of the hour. It is needless to say that enacting a law in this context would definitely provide a mechanism for regulating the air-noise-water pollution caused by the tourists and their excessive use of tourist

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<sup>6</sup> AIR 1996 SC 1100

vehicles, which by no stretch of imagination causes disturbance to the lifestyle of the local communities and wild animals including the environment and the natural resource.

Ecotourism generally plays a major role in conservation of natural environment by way of protecting forests, wildlife and biosphere reserves. Thus the activities associated with ecotourism must be sound and sustainable with the application of proper waste management, eco-friendly pollution-controlling technologies made of renewable resources, constructing tourists' resorts using the non-polluting materials and locally-available equipment, conducting environmental impact assessment at regular intervals etc. Besides, one of the aims behind the rise of ecotourism is the education and scientific research towards the pristine natural beauty and diversity. Thus, if the local tribes are provided necessary training and awareness in this area, the employment opportunities for the local people would be wide enough to add more benefits in such ecotourism projects. Further, the revenue that are generated from such ecotourism packages, can easily be invested into the development of sustainability in transport services, supervisory qualities, training programmes, impact assessments and other pollution control facilities. Unless and until specific actions and methods are adopted, the ecotourism destinations in India will inevitably be converted into polluted areas, lose its significance and affect the lives of local residents and the entire ecosystem.

Considering these circumstances, so far as the concept of ecotourism in India is concerned, envisaging it as a reality will only be possible by way of a collaboration of proper application and innovation of biotechnology along with the enforcement of a sunshine legislation revolving around the planning, management and regulation of ecotourism in protected areas of India enriching with flora, fauna and diverse cultural heritage. Thus, a fresh new law and the usage of modern biotechnological methods and inventions would be of immense beneficial in terms of achieving the success in making India an ideal ecotourism destination.

➤ **Biotechnology as the guiding tool to Promote Eco-tourism in protected areas of India: Recommendations**

Ecotourism, a type of tourism which is conducted with an objective towards conservation of wildlife and nature as well as achieving sustainability in economic, socio-cultural development and advancement of communication with local tribes. India, being a popular tourism destination, offers a range of diversified geographical dimensions and thus can never be underestimated when it comes to ecotourism. From the aspects of tranquillity to the exploration of various wild adventure activities such as mountaineering, Jungle Safari, Desert safari, skiing, bamboo rafting, surfing, paragliding etc. – the tourism destinations in India are providing wide scope of opportunities to the travel-lovers. The rich cultural heritage, diversified environment, ancient

values, creativity – these multi-facets combine together to make India an ideal location for eccentric tourism.

Over the past decades, the tourism in India has been victimized by the enormous damage of environment, wildlife and forest habitats caused by the contemporary human kind in the name of commercialization and modernization. As a result, the Ecotourism in India is a far-fetched dream yet. Thus the promotion of ecotourism in India is subjected to the awareness amongst the technologically-advanced societies and individuals with the help of whom the flora, fauna and rich culture can be enriched and gain attraction to the nature-lover tourists. At this juncture, Biotechnology can be of assistance in various ways towards the preservation of biological diversity on one hand and the development of ecotourism on the other hand.

Various ways of applying biotechnology for the management of waste that can be adopted in ecotourism destinations are as follows:

- **The bio-toilet** : The bio-toilet is one of the easiest ways to recycle bio-waste through installation of a bio-tank having several chambers and needs to be used in every ecotourism spots in India. It is operated through micro-flush system and manages bacterial culture by way of aerobic decomposition of the human waste. This system complies with regulatory standards, free from any external energy and produces effluent water free from any pathogen, which can be used for gardening. Further, for generating biogas to cook or heat food items, Bio-toilet system is the effective technology for adopting in ecotourism destinations.
- **The bio-digester technology**: The bio-digester technology was first adopted by the Defence R&D Organizations in India. It is a technology which conducts treatment of human waste at the first instance i.e. at its source itself. A bacteria falling under the species of anaerobic and acting as the role of inoculums, is created in this technology, which can function under a low temperature i.e. (-5°C) as well as at high temperature i.e. 50°C. Such anaerobic bacterias, being the inoculums, helps in discharging no human waste by converting the same into CO<sub>2</sub>, Methane and water free from pathogen and thus reduces the rate of disease causing due to polluted water. Under the Bio-digester technology, the bio-tank can be designed as per the requirement of the customers.

**Biotech for conservation** : Presently, the issues concerning the extinction of endangered species or organisms are steadfastly increasing due to the degradation of environment or the ecosystem. Hence, to prevent such issues, the following technologies can be adopted and developed:-

- **In-vitro technology** : In-vitro technology is also an useful technique for conservation of the biodiversity in plants. Such technology basically processes through three steps, namely, culture initiation, culture multiplication and maintenance, storage. With regard to storage, there can be medium-term as well as undefined-term basis storage. Generally, medium-term storage is for few months to few years where the slow growth nature of strategies are

applicable to, whereas in the undefined term storage, the method of cryopreservation is applicable where plant tissues are preserved at low temperatures to convert it into artificial seeds in order to inhibit its growth and this method also permits 20% more increase in regeneration process than the rest conservation techniques.

- **Biotech for evaluation Genetic diversity:** The regime of biotechnology in promotion of ecotourism can also be helpful in terms of assessing the genetic diversity in the plants and organisms. The word ‘Germplasm’ refers a part of a plant that can be stem, living tissues, leaf or living cells from which the new plants born and grow. Therefore, germplasm helps to determine the genetic evolution and development of the species and trace the plant biodiversity through genesis in order to find better ways to invent and yield high quality plant genes safeguarding the plants from diseases and the pollution.
- **DNA Banks:** DNA technologies are very popular name today. More and more experts dealing with conservation of plants are shifting to the DNA banks to conserve the plants in a more effective way. The DNA Bank is used for preservation of genetic plant resources to maintain bio-diversity and recognized as an efficient and long-term technique. In compared to the seed gene bank, the DNA Bank reduces the tendency of revealing confidential genetic data in the natural surroundings. The DNA Bank method very small space for storing the stable DNAs in cold atmosphere.
- **Bioplastics:** Bio plastics are generally made from biopolymers and must be used in packaging the food items, personal cares and other products instead of non-renewable plastic covers.
- **Landscape management and bioremediation:** The Contemporary Biotechnological field is contained of diverse inventions and techniques for the purpose of environmental protection. With regard to ecotourism, land resource management is one the biotechnological methods for the purpose of managing wastelands and other forest assets. Further, by way of adaptive or functional genetical experiment, upgraded organisms, whether endogenous or introduced, can be created which in turn, would be closely involved in the process of bioremediation and landscape restoration of natural, forest and marine resources. Such restoration also covers the elucidating the biochemical paths, supervising the land microbial genes and identification of ecologically fruitful genes.

#### ➤ **The Sunshine Legislation as the Safeguard towards the dignity of the Ecotourism Areas in India: Recommendations**

In the midst of plethora of environmental laws, India hardly finds any ecotourism legislations at the national level, except an ineffective national ecotourism policy in effect 2002 and the guidelines on ecotourism which was withdrawn in 2015<sup>7</sup>. Hence, under these circumstances, it is

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<sup>7</sup> Kumar Sambhav Shrivastava, *Centre dilutes eco-tourism guidelines*, 25 August 2015, available at : <https://www.downtoearth.org.in/news/centre-dilutes-ecotourism-guidelines-39172> (Last Accessed on January 30, 2019)

a need of the hour to enact an effective sunshine legislation which will be ecotourism-centric in and around the protected areas in India. Some of the important clauses must be included in that recommended legislation, as follows:

- **Public-Private Partnership:** To make the new law more effective, the co-ordination between public sector and private sector is highly required. The proposed law must have a defined legal framework laid down by the Government and be driven by the private sector including NGOs and Research Organizations and shall be welfaristic in nature.
- **Consistency with the International Treaties Standards :** The new law should be in consistent with the International Environmental Law Treaties, Conventions and other instruments including Kyoto Protocol, Stockholm Convention, Conventions on Climate Change, Rio Declaration, Conference of the Parties , Convention on Biodiversity etc., in which India is a party.
- **Stringent Penal Provisions:** Imposition of penalty based on the nature of offence must be provided in a stringent way in order to prevent the degradation of the ecotourism destinations and for non-compliance of any standards or negligence in serving the duties under the new law.
- **Appointment of Special Bureau for carrying out and monitoring the implementation of clauses under the New Law:** Under the new law, for carrying out the provisions and obligations and complying with the standards stipulated, a special bureau must be appointed at district levels for the purpose of supervision and monitoring, whose position shall not be superior to the Police Superintendent at each district and must consists of experts from Science, Engineering, Medical and Law backgrounds.
- **Inserting a strict code of ethics to be followed by the travel agencies and associations:** Travel Industry and Research Organizations specifically dealing with ecotourism packages and activities must be bearing with a license issued in accordance with the provisions of the proposed law and a strict code of ethics shall be laid down under this newly proposed law to regulate the activities of such travel agencies and research organizations.
- **Inserting a checklist with regard to maintenance of sustainability standards in all ecotourism destinations :** With collaboration of the biotechnology sectors and by including the biotechnological methods (recommended in this paper) in the new law, a checklist shall be inserted as a Schedule for imposing minimum sustainability standards to be followed and adopted in all ecotourism destinations in India
- **Speedy actions and disposal of cases:** The adjudicating authorities as mentioned other the Environmental Protection Act, 1986 shall be the adjudicating authority under the new law, but the time limit to complete the proceedings under the recommended law must be prescribed in order to achieve speedy justice.

- **Organizing Training and Awareness programmes for the Local Tribes:** To increase the involvement of the local tribes, the NGOs and research organizations shall, at regular intervals, conduct training sessions and awareness programmes for the local tribes and at the end of the sessions, they shall be provided employment opportunities in those ecotourism destinations.
- **Undertaking customized programmes and activities by the respective State Governments as per the nature of the ecotourism places:** Under the control of the Central Government, the respective State Governments shall make efforts and frame customized policies and guidelines under the ambit of new to undertake various programmes and activities on the basis of nature of the ecotourism places like national parks, biosphere reserves, sea coasts, sanctuary, forests, mountain ranges etc.

## CONCLUSION

In the era of continuous degradation of natural beauty in the name of commercialization, the concept of ecotourism acts as a natural refreshment. It is recognized that every citizens and tourists of India are responsible for preservation of ecosystem including the protected areas full of rich biodiversity. Although, in recent times, the ecotourism has gained a significant impact on the scientific research and education field, lack of effective and stringent laws and deficiency of proper mechanism and technology make the concept an unborn child yet. Not only the implementation of the recommendations proposed in this paper in terms of law and biotechnology, but additionally, there should be a series of guidelines to be laid down for development of ecotourism in each nook and corners of the country. Along with that, all the NGOs dealing with Wildlife and Environment issues and the Scientific Organizations should come forward and play a major role to monitor and supervise the functioning of ecotourism and its day-by-day development. The legislation, rules or guideline that are to be enforced to smoothen the road of ecotourism in India, are required to be amended time to time in consultation with the scientific experts and architects so as to adapt the dynamic socio-cultural and environmental facets. Last but not the least, the success towards ecotourism will be achieved if the local tribes in the protected areas are given due preference by engaging them in interacting activities and creating a wide range of eco-friendly employment opportunities for them.

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