https://doi.org/10.69974/glskalp.02.03.34

GLS KALP
Journal of Multidisciplinary Studies
Volume 2; Issue 3;
July - September 2022

Evolving Paradigm and Legal Challenges in Biodiversity for Plants and Microorganisms

Samrat Bandopadhyay[1]
Abdur Rahman Mallick[2]

Abstract

Conservation of Biodiversity including that of Microorganism and Medicinal plants can be seen from multiple perspectives. The view from scientific exigency of preservation, protection and conservation of biodiversity has varied factors including that of scientific and technological progress, equitable and structured benefit sharing mechanism, sustainability of ecosystem, restoration of ecological sensitive area with special emphasis on eco-zone and habitat protection. Growing clamour for balancing the development with environmental issues have lead to issues of the nature of pollution, habitat destruction, over-exploitation of natural resources and conflict innate to the mindset of human beings with respect to non-sensitisation or lack of awareness on eco-sensitive environmental human activities. A slew of initiatives in the environmental domain such as Budapest Treaty, Cartagena Protocol, Nagoya Protocol the world over has to be seen in congruity with the local enactments or environmental laws enacted to provide the ambit of jurisprudence evolving in the arena of environment in a developing country as India. In India, the progress is tremendous and progressive with technology and science playing a vital role with 'Microorganism' being included in the subject matter of Patent Act, 1970 and Plants and Seeds in the ambit of Plant Varieties and Farmers Rights Act, 2000 and Seeds Act, 1966.

Keywords: *Biodiversity; Plant Varieties and Farmers Rights Act; Seeds Act; Patent Act; Budapest Treaty; Cartagena Protocol; Nagoya Protocol; Living Modified Organisms; Genetic Modified Organisms*

Introduction

Changing Character of International Environmental Law has seen tremendous growth of primary and secondary sectors. The broader issues posed in the present era which has to be seen from the prism of Technological advancements, whether it is in trade channels, communication or urbanisation. The challenges posed by exploration beyond the Mother Earth (the planet), whether in natural satellites such as moon or deep sea mining for mineral nodules, increasing traffic across the navigable sea channels adding pressure on the natural resources, excessive mining and exploration of undersea mining, building of infrastructure at the cost of indigenous populations and their sustainable environment and ecosystem, air, water, sea, sound pollution, alarming increase in greed of humans for the poaching of animals from forest, devouring the natural forest resources from the environ of the forest dwellers are posing new challenges. In the instant article, attempt has been made to look at the broader issues of 'Evolving Paradigm and Legal Challenges in Biodiversity for Plants and Microorganisms' from the prism of Treaties, Protocols and Conventions at one end and judicial rulings at another end. To arrest the emergent need of conservation and protection of biodiversity, would call for an urgent relook at the fundamental shift in developmental planning in this era of

[1] Joint Director, Central Government Civil Services Officer, Group A, Government of India.
[2] Young Professional (Law), Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, Government of India.

urbanisation and economy driven world. The economic factors have to be weighed with special emphasis on environmental growth and development. The change of outlook has to be more of a change towards the model which respects both nature and culture. The traditional outlook towards environment has to be revisited from the vital perspective of sustainability and equity.

Nagoya Protocol and its broader framework

Nagoya Protocol has laid the broader framework concerns the sharing of benefits with is related to genetic material with the consideration towards '***equitable and fair sharing of benefits***'. The Protocol is the building block when it comes to utilisation of conservation and at the same time, sustainable use from the perspective of biodiversity. With 127 countries and European Union ratifying the Convention, it is unprecedented achievement considering that intent behind the equitable accessibility to the genetic resources and its wider compliance within the ratifying states would be a Win-Win scenario for the implementation with emphasis particularly on the traditional knowledge conservation and biodiversity as the primary area where protocol is telling example of cooperation of member countries on their natural resources and their utilisation. The compliance obligation as specified in '**Convention on Biological Diversity (CBD)**'does mention about "***in view of prior informed consent and as decided by contracting parties on mutual terms***" and mentions about effective check and balances which are tallied in the value chain related to Research and Development (R&D), pre-commercialization, Commercialization, monitoring with an eye towards innovation and creativity.

A case in point is ***Diamond v. Chakrabarty***[3] where the core contention was two-fold as to, *firstly*, whether living organisms such as 'microorganisms' can be patented or not? And *secondly*, whether the genetically developed in labs for microorganism are subject matter where living things are at all a moot subject which is within the ambit of Intellectual Property Rights including Patents? Though in the instant case, it was a bacteria in the taxonomy of nomenclature called ***'Pseudomonas putida'*** which is a potent bacteria for breaking the 'crude oil' and helpful in mitigating the risk posed by 'oil spills' in Oceans. The question of innovation and creativity in the field of science, has generated traction over the years. The seminal question had always remained as to whether this patenting is in line with broader public interest considering that though science and technology has grown leaps and bounds with the inception of technological prowess and technology transfer, the fruits of the benefit of technology warrants its benefit sharing to the common populace. The moot question which comes seminal in the context, is about the utilisation of knowledge for growth and benefit of people with utility for environment vis-a-vis the inherent risk in perspective of patenting of 'Micro-organisms' with special emphasis on lab developed genetically composed organisms which have potential benefit for humanity from environmental perspective. The other side is the voice of the people who express concern of patenting of living organisms, though developed in labs and via. scientific methods and processes, which are ultra-sophisticated and as same time defines and sets the contours of the rights which a patent holders gets along with the patents on 'microorganisms' which are permissible in India with applicability of Section 3(j) of Patent Act, 1970, which says that apart from 'microorganisms', the subject matter of patents does not inter alia plants, seeds and animals.

Though the moot questions involves the principles of 'equitable and fair sharing of

[3] Diamond v. Chakrabarty, 447 U.S. 303 (1980)

benefits' as per Convention of biological Diversity, another case where US jurisprudence had a profound influence world over includes that of *Funk Brothers Seed Co. v. Kalo Inoculant Co.*[4] Another case which is relied upon includes the Hartranft v. Wiegmann[5]

Budapest Treaty

The 'Budapest Treaty', as a vital international treaty mentions about the patent procedure laid down for recognition of the deposit of microorganism, where 85 countries have arrived at the consensus on the level of sufficiency when it comes to ***suo moto disclosure*** and defined procedure for ascertaining that the subject matter of invention does not fall in the ambit of prior skill in the art. This also specifies that the deposit of microorganism has to be test *apriori* before seeking for any protection in designated labs or recognised institutions for the application of patents. It is vital to note that deposition of the microorganism or biological deposit in specified institution helps it to be recognised world over with the range of bio-material which could be deposited in vast array of fungi, algae, protozoa and bacteriophage among a host of other organisms including plasmids.

Before analysing the environmental issues pertaining to plants, let us have on the history of India and the importance of natural resources including minerals, plants, tree and entire ecosystem from the perspective of economic interest of rulers during the British administration era in India.

Cartagena Protocol

The Cartagena Protocol on Biodiversity is supplemental and works in tandem with the broader goals of Convention on Biological Diversity. The Protocol seeks to protect the Genetically modified organisms (GMOs) which are the product of modern biotechnology. The Protocol works on the 'Precautionary principle of Environmental Law' where the objective is to synergize and to bring in balance of health considerations or dangers posed by trade of 'GMOs' along with the economic benefits accruing from trade. It enables countries to relook at their trade policies where they may ban entry of the products involving GMOs and safeguard from any adverse effect which may be potential considering that there is not enough scientific findings to substantiate its utility from health safety and other issues pertaining to ill-effects on public health. The Protocol also talks about Living Modified Organism (LMOs) which has the potential to replicate and transfer 'Genetic material' via carriers such as viruses and viroids.

Looking from the prism of History

India being a British colony had to experience drain of wealth and its natural resources for such a long period. The exploitation of resources are documented by the Grand Old man of India, Shri Dadabhai Naoroji as he meticulously mentioned about 'Drain of Wealth theory' in his book 'Poverty and Un-British Rule in India'[6]. A similar analysis put forth by Shri R.C. Dutt in his book 'Economic History in India'[7]. All British administrative cost and army expenses were being met by the resources send from the ports of Indian shores to Leeds, Manchester, Sheffield and Birmingham, among a host of other cities. The Industrial revolution warranted a huge consignment of resources sent from hinterlands of India (then, a colony under British rule) by a mess of railways to ports and

[4] Funk Brothers Seed Co. v. Kalo Inoculant Co., 333 U. S. 127
[5] Hartranft v. Wiegmann, 121 U. S. 609, 121 U. S. 615
[6] Poverty and Un-British Rule in India by DadaBhai Naoroji, Nabu Press
[7] Economic History of India by Romesh Dutt, 2nd Ed.(1994)

then shipped from Indian ports, primarily from Calcutta, Bombay and Madras. The telegram service aided the administration of that transfer.

It is vital to mention that Colonial interests in Forests are pertinent to mention in that context. In the initial years of the British rule more and more forest land was encouraged to be brought under agriculture with the sole objective to increase the revenue of the exchequer. It was the growing deficiency of oak in England that compelled the King's Navy to meet its need by substituting teak for oak. British Government assertion that the royalty right on teak trees enjoyed by the Indian princely states earlier would henceforth be vested in the Company. The material interests of the state, especially the wood requirements for ship-building, railways, government departments and industries, were the main driving force for the forest policies of the colonial state.

In the International arena, from the perspective of history Growth and Development was propelled at one time by **maritime power by European countries** along with the *'laissez-faire principles'* have been determinant in that endeavour in conjunction to reaping benefits of freedom of sea. **Post-decolonization era**, experienced the shrinkage of geographical distances along with improvement of communication aiding in 'substantial transformation in content and character of international law'. The development of naval prowess along with 'Silk Route' was the driving factor for growth of trade and commerce which became the life blood of sustaining the economic growth and the environmental consideration where not provided that traction or primacy.

Sense of Urgency on Environmental Issues

A sense of **urgency and a need for looking into the emergent environmental problems** with '*swiftness and considering its irrevocability'* to our planet provided the necessary fillip to the cause of initiating legal framework to address the environmental issues post the **United Nations Conference on the Human Environment at Stockholm in 1972** and **Earth Summit United Nations Conference on Environment and Development at Rio de Janeiro, Brazil in 1992.** In this context, prescribing a threshold for states behaviour with **legal regulation of state behaviour** became important.

Ecological Sustainability

The Ecological sustainability has to encompass within itself Nature, Life Support and Community, where the emphasis is on Protection and Conservation of Earth, Biodiversity and Ecosystem, ably supported by a life support on the pillars of ecosystem services, resources and environment. The community emphasis is another pivotal area in the fulcrum which includes sustainability of Cultures, groups and places. In international law the concept of sustainability dates back to the North Pacific Fur Seal Treaty of 1911 with the objective to manage the commercial produce of mammals like Northern fur seals and sea otters. In 1962, the UN General Assembly (UNGA), passed a resolution emphasizing on the need for the protection of natural resource, flora and fauna at the earliest possible level in tandem with economic development. In this context, UN General Assembly's 'World Charter for Nature' was a vital step in that direction to achieve optimal sustainable productivity.

Vital Dimensions/Challenges with Sustainable Development:

Firstly, all the environmental, social, cultural factors have to linked and the causation (cause and effect) on economic development may not be feasible and sustainable at all the times. This applies even for Microorganism and the Plants in any habitat.

Secondly, Ignorance of Historical and background of colonial legacy and resource

exploitation difficult to apply the principles in totality.
Thirdly, Lack of scientific outlook leading to difference of opinion and cause of distrust among countries who have a greater or lesser 'know-how' when it comes to application of technology and science for conservation of Microorganism and the Plants.
The states being primary subjects in International Law are one of the core stakeholders in International Environmental laws. Article 38(1) of Statute of International Court of Justice[8], Hague enunciate the sources as International Conventions/Treaties, International Customs, General principles of law recognized by civilized nations and Other subsidiary means.
The 'Unique treaty making process' involves understanding and acknowledging the sense of urgent and imminent need to address global environmental issues. The Multilateral Environmental Agreement (MEAs) provide the context and the subject matter to mitigate the environmental challenges, whereby it is grouped into five groups as Biodiversity Conventions, Atmospheric Conventions, Land Conventions, Chemical and Hazardous waste Conventions and Regional Sea Conventions and its related agreements. Though the treaties provide the flexibility but the MEA's provide the legal mechanism by tools and techniques which are sectoral based such as Conservation of Living Resources, Air Pollution, Conventions related to Chemical and Hazardous Waste, among others.

Role of Science in Biodiversity
Role of Science is vital considering its unprecedented effect on the international treaty making process not only as a triggering effect but also a tool to address the global environmental issues considering the common concerns of humankind with shared and joint common interest. In this context, the fear of irreversible damage caused an another dimension as complete certainty is not always there because of myriad of reasons including veracity of claims, lack of scientific evidence, scientific survey and literature limited applicability considering the capacity of the countries to forecast and to take remedial measures. In this endeavour, politics of science garners traction when it comes to '**Framework convention'** and its applicability which is of the nature of Tortoise – 'hard shell outside and soft belly inside', as such some ambiguity is inbuilt to provide that flexibility to the countries.
The **Plant Varieties and Farmers Rights Act 2000** as a statute laid the ground for inherent aspect of 'Equity' and 'Ethics' enshrined in the Convention on Biological Diversity. It is thus a 'sui genesis' system of plant varietal protection. The Act recognises the contribution of Individual as well as community importance, the very essence of including their contribution, documentation of the contribution, recognising the vital aspect of benefit-sharing among themselves with the objective of conserving and sustaining their knowledge. It is vital to understand that it forms the pillar of economic stability for any community involved in the protection of the 'Intellectual Property Rights'. The law brings in its ambit the broader purpose of taking cognizance of 'prior consent of the communities' and recognition of 'traditional knowledge' within communities. The enactment enables a person to seek permission before using any biological material. The aforesaid Act also provides for option of 'compulsory licensing' whereby the rationale of making available for public interest if sufficient reasonable quality of protected variety of seed is not available in the country. The broader control is with the Government to decide which genera and specifies should be considered for 'compulsory licensing' when it comes to Plant Varieties and Seeds.

[8] ICJ, https://www.icj-cij.org/en/statute (last visited on Apr. 20th 2022, 8:09 A.M)

Applicability of 'No Harm Principle'

It does not limit itself to national jurisdiction of States but also goes beyond the limits of national jurisdiction; whereby the threshold or the limits have to explicitly defined for ascertaining the prohibited activities and the 'due diligence process' assumes a prominence and nature and location of activity has a bearing along with level of precaution if any considered by the nation. In this context, the 'compound obligations' pertains to the due-diligence exercised considering the level of development and the technological and scientific prowess that the nation is in. The obligation has to be reflected in the planning and operation stages also.

Trail smelter arbitration dispute has a trans-national or trans-boundary character which is the fit case for establishing the **'Harm Principle'** in international environmental Law making exercise. The smoke generated by smelter in US and Canada border were not only the cause of inconvenience to the residents in the border also, the **cause of danger to the adjunct forests and crops** with the result the matter landed in Arbitration Tribunal and was delved into and finally settled in 1941.

Prior Informed Consent

This principle has evolved with the recognition of rights of all people including placing people in common pedestal when comes to 'equity' principle. For example, Forest dweller and indigenous people, commonly called as '**tribal populace'** have a right over their ancestral land and forest resources and considering if any highway is being constructed then, they have to informed and should be make **'stakeholders'** in the eco-system of decision making. This could also involve **'rehabilitation and restoration packages**' and with their prior consent.

Environmental Impact Assessment

It includes assessment at various points of project plan and policy making which assess the consequence, effects and changes which it would have on the environment. The Environmental Impact Assessment (EIA) is vital and quintessential assessment in any projects or plans where the EIA notification in 1992 made it mandatory for seeking environmental clearance from either the Central Government or State Government in India. The impact assessment is multi-dimensional includes public awareness and dissemination with advocacy for multiple long gestation projects involved in core sectors such as mining, construction, ports, industrial projects, thermal and hydroelectric projects inter alia coastal and ecological fragile areas and communication projects. For example, this assessment garners traction with project in coastal areas endangering the eco-system affecting Olive Turtles in Gahirmatha Marine Sanctuary or Common Sparrows in Delhi's central busy hub-bubs of the city.

Rights of Indigenous and Local Community

When analysing the environmental factors, the rights of indigenous people becomes very important. In that direction whether it is preservation, protection and conservation of the plants in forest area or the plants genetic material, it is vital to make the farmers and the breeders, the tribal populace and the indigenous people the stakeholders in the journey of environmental growth with economic consideration given equally primacy. The endeavour in any Act such as 'The Plant Varieties and Farmers Rights Act 2000' has to be seen in an concerted and congruous fashion with the rights of the indigenous person of a particular place or a region. The common law equitable principle of justice, equity and good conscience is the building block for any environmental endeavour and particularly in the domain of environmental law.

Another example which was contextually relevant, is that of **Bauxite Project at Niyamgiri Hills**, in pristine environmental glory of Kalahandi and Rayagada districts of Odisha[9]. The moot contention is wide and the continuum is vast with consideration on environment, ecological balance with development at one end and the 'Rights of the tribal and indigenous people' at other end. The growing clamour for delicate and yet vital balancing is a quintessential process of marrying the concepts and principles with reliance on '***Doctrine of Prior Informed Consent***' and '***Public Trust Doctrine***' with a ***precautionary approach*** for the rights and the responsibilities of the local populace and the holders of '***Traditional knowledge***' which **is innate** to the application of the principles governing the subject area of ***environment*** and at the same time, having a look at the ***economic and progressive developmental outlook*** towards the '***Intra-Generational' and 'Inter-Generational equity***' and developing a balance on that count. Another dimension in that endeavour, is that of '***Recognition of Forest Rights'*** and '***Constitutional Rights (as embodied in Article 21) which are implied fundamental rights of the indigenous people***' with regards to the broader principle of '***Forest dwellers and their right befitting the rule of law***' in the parlance of broader goals of meeting the rights and duties of citizens. In that endeavour, the amendment in the century old legislative enactment of **Indian Forest Act 1927**, where **'non-forest Bamboo'** which is christened as 'Green Gold' is **no more a 'tree',** which has the vitals to open the sea of opportunities from the perspective of bamboo utilisation for sustaining the entrepreneurial pursuits of the local tribal populace where Central Government's proactive and developmental role has to been multifaceted from the perspective of maintaining ecological balance and environmental protection with 'Rights of indigenous local populace or tribal interests garnering centre stage'.

Conclusion

To conclude, the need of the hours to have synergetic and concerted efforts by all the stakeholders in the value chain of Environmental Law in the direction towards creation of public awareness on the topics deliberated and as discussed in this article. The traditional knowledge of the indigenous people has to be respected along with adherence to guidelines and in conformance to established principles/rules/statutes with regard to the extant law of the law of the land. The changing facets of recognition of rights of the farmers and breeders including that of conservation of biodiversity in relation to plants and microorganism has to be seen in broader contours of Environmental Rights as they are implied fundamental rights of all people and for the betterment of humanity as a whole.

[9] Orissa Mining Corporation Ltd v. Ministry Of Environment & Forest & Ors., WP (Civil) No 180 of 2011