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JOURNAL ON ENVIRONMENTAL LAW POLICY AND DEVELOPMENT

MESSAGE FROM THE PATRON-IN CHIEF

'Education' is not information, but formation. In fact, the real education is that which brings transformation through formation. The transformative value of environmental education in making people aware of their obligations towards the Mother Earth in sustainingly keeping it as "The Good Earth" (with apologies to Pearl S. Buck) cannot be overstated.

The fourth issue of JELPD (Journal on Environmental Law and Policy Development) makes an honest attempt to focus on the environmental education looking at the same from holistic perspective. This issue, like the earlier numbers, judiciously blends the different perspectives of environmental justice including access to the same.

I congratulate the whole team for sustaining the vigour and for coming out with another luminous volume on Environmental Justice.

Prof. (Dr.) R. Venkata Rao
Vice-Chancellor, NLSIU

MESSAGE FROM THE PATRON

The fourth issue of JELPD is reaching the Reader, on time! The clock-work precision with which each stages of the issue is planned and executed to reach the ultimate consumer within the deadline is, as every editor of Journal would admit, a herculean task. That the Research Team with the able leadership of Dr. Sairam Bhat, has been able to achieve, with time to spare, speaks volumes for their dedication, discipline and passion to widen the horizons of learning in this exciting area of law. May their tribe, increase.

This issue brings forth, at the very outset, the reflections of Prof. N R Madhava Menon, the doyen of Law Teaching Fraternity, on preparing the budding lawyer to environmental law profession. His insights as to the content of the discourse, foundational anchors and methodological approach, are, indeed, worth ruminating over. Having gotten to the teaching of Environmental Law, with his guidance, I am tempted to share my experience in this thrilling journey, in this journal, as well. As the first Indian Teacher on Environmental Law, in a Law-school setting, about to complete twenty five years, this year, in this venture, it would be my privilege to walk the Reader through my experience, hopefully, in the next issue.

Armin's contribution who, as my predecessor in Environmental Law teaching in this Law school, set such high standards, for anyone to admire and emulate, has favoured us with another insightful analysis of pronouncements of the apex court over Mining operations on different terrains, in this issue.

This issue, like the previous ones, is embellished by write-up that analyse cases, access to environmental justice issue, implications of trade of forest resources and the lessons to be drawn from religious concerns for conservation of environmental resource.

Verily, a feast for one craving to track the trajectories of development of environmental jurisprudence, over time. Here are the best wishes for a good reading in the new year, by your fellow traveller in the environmental path.

Prof. (Dr.) M K Ramesh
Professor of Law

EDITORIAL

We published the March of the Environmental Law-2016 on 3rd December 2016 and continued our publications efforts with JELPD 2017. It is indeed my privilege to organise the release of the 2017 edition of JELPD. This year has been remarkable for us. Indeed our centre is progressing from strength to strength and we have been consistently engaging in education, research, training and advocacy in the field of environmental law. In the year 2016, our centre organised sixteen workshops, training programmes and seminars- a phenomenal achievement by our own assessment. These events have been made possible due to sustained, dedicated and excellent team efforts under the leadership of Prof. M K Ramesh, supported ably by Subin, Veada, Divyesh and Baba. I express my sincere thanks to Prof. (Dr.) R Venkata Rao, Vice Chancellor of NLSIU who as always has been encouraging and supportive of all our activities and endeavours. We have very ambitious plan for 2017 and hope to match the expectations of our stakeholders.

This edition has the privilege to open with an article from Padma Shri Prof. [Dr.] N R Madhava Menon. His article reflects the basic requirement of environmental law education as a critical component for environmental preservation and conservation. The concern for environment protection has led to a situation wherein it is quite pertinent to include the culture of environmentalism in an educational institution so as to ensure that the citizens of tomorrow do their part to protect the environment. Delving into ancient wisdom and culture, which promulgated environment protection, the article conveys the message as to how the concept of sustainable development has been enshrined in our Constitution and put into practice at various levels of governance. This article also goes on to stitch together the core ideas for conservation and environmental education and weave them into an educational curriculum, thereby stressing upon the importance that it has in current times.

The second article is from my mentor, guide and undoubtedly the foremost teacher in the field of environmental law in India, Prof. Armin Rosencranz. His article focuses on the issue of Mining in Forest areas, with special emphasis on Vedanta. Analysing a plethora of decisions of the Supreme Court of India on mining, which has become a chief revenue-generating activity, the authors aim to throw light on the rationale and the importance that the decisions have. Highlighting four major cases, in the recent past, the authors showcase the active and energetic steps taken by the local communities and environment protectors, alike, to protect the environment. They also look into the rationale of the courts, which arriving at such decisions and examine them as regards their feasibility and applicability.

Next, Sharan and I have a contribution on Supreme Court intervention in Air pollution in Delhi. Since the 1990s, the Supreme Court of India has played an activist role towards controlling air pollution in Delhi by directing the Administration to enact stringent far-seeing measures to ensure a long term improvement in air quality. However the short terms gains from those measures have been largely neutralised by an exponential rise in motor vehicles and emissions, especially in the Delhi NCR region. Recently with the NGT Ban on diesel engines, once again, the Supreme Court is required to play an important role in ensuring the Administration implements effective measures. With air quality sharply deteriorating, especially during winter, the Court in 2015, banned diesel engines larger than 2000cc. The authors intend to critically analyse this decision, among other recent measures enforced by the Delhi Administration, and gauge whether they may have a similar long lasting effect on Delhi's air quality. Furthermore the article attempts to probe into other possible long terms solutions, if implemented, would be effective in NCT Delhi. In doing so, the authors has also analysed measures taken by other cities across the world, in battling air pollution.

Next, we have Prof. Dinkar's contribution on Toxic Tort Litigation- 'Access to Justice'. The sacrosanct adage prevailing in the justice system is still a

fallacy in the mind of some poor and downtrodden inhabitants in India. Environmental justice, categorically insists the legal system to scrutinize the claims for personal injury arising within its domain, especially the claims of poor and downtrodden class of people. In India, it is high time to change the legislative and judicial policy while considering the claims based on serious toxic tort litigations. One of the legal barriers in India is the bar of claim due to the law of limitation. The plaintiff's burden to prove the general and specific causation also creates certain obstructions. Imposing of heavy court fee may also restraints him from filing suits since he may not be financially fit to overcome it. These issues directly erode the plaintiff's right to access to civil justice in toxic tort cases.

Bipin Kumar analyses the issue on Trade in Forest Produce, especially in light of WTO. He argues that sustainable management of forest resources is far from a new concept in forestry. In this context, the relationship between trade measures and forest management is of great importance. The regulatory framework impacting trade in timber and wood products is evolving rapidly and becoming more complex for addressing issues such as tariffs, export taxes and subsidies, as well as non-tariff measures designed to tackle illegal logging and prevent the spread of pests and diseases. In this paper, the author considers the implications of trade liberalization under the WTO for one very important natural resource - forests. In the course of the paper, the author analyses the current measures at the WTO dealing with trade in forest reserves and forest products. The author also examines the impact of the same on world trade in forestry with an aim to propose a balance between the sustainable development of forest reserves and increase in world trade.

Subin has been consistently writing on Religion and Environment. In yet another contribution from him, he emphasises the need to bring about an attitudinal shift in our way of life and in our view of environmental protection, through religion, especially Hinduism. Religion has by and large, played a great role in fostering environment protection, touching upon the duty aspect

rather than the right aspect. Following this approach, it is felt, is a bit more successful than the rights based approach, which has not been able to imbibe and ingrain, in man, the seeds of better environment protection. Hinduism, more of a way of life, than a religion, has been able to enshrine a lot of principles that augurs and augments environment protection. The author, delving into various aspects and concepts of Hinduism which promote harmony with nature, aims at internalising these age old concepts and traditions into law.

Hope this issue of JELPD contributes positively to the domain knowledge of environmental law. As always, we thank you for your support and cooperation in all our endeavours.

Dr. Sairam Bhat
Chief Editor, JELPD

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1

ROLE OF HIGHER EDUCATION IN ENVIRONMENTAL PROTECTION AND SUSTAINABLE DEVELOPMENT

*Prof. (Dr.) N.R. Madhava Menon**

More than an inevitable ritual tolerated by the audience, convocation speeches nowadays mean very little to the graduates to whom they are addressed. Nevertheless, I would like to make an attempt in my speech today to convey a message which you can forget only at your peril. It is about negotiating a future for you and your children which critically depends on steps taken today for the protection and improvement of human environment, often termed in public discourses as "Sustainable Development" Jagran Lakecity University by its very name and location conveys the idea of sustainable development. Water, air and forest are three natural resources which sustain life on Planet Earth and this University has its abode amidst the lakes, the forest and fresh air, bounties of Mother Nature. And this unique natural environment compels the university community to explore ways and means to advance the culture of environmentalism in its educational programmes. I would, therefore, like you to consider on how this learning objective could get into the process of curriculum development at all levels of higher education irrespective of the subject of study or the course being pursued in the university.

* Hony. Director, M.K.Nambyar Academy for Continuing Legal Education, Kochi, Chairman, Menon Institute of Legal Advocacy Training, Trivandrum. This is the text of the Convocation address delivered at the Jagran Lake city University, Bhopal on 2nd December, 2016.

GROWING CONCERN OVER CLIMATE CHANGE AND HUMAN SURVIVAL

Concern over the state of environment has grown the world over since the United Nations Conference on the Human Environment held at Stockholm in June 1972. Increasing pollution, depletion of vegetal cover and biological diversity, excessive concentration of harmful chemicals in the atmosphere and in food chains, growing risks of environmental accidents and threats to ecological and life support systems have aggravated the concern to near panic in recent times. The impact of climate change is being felt today and the world community's resolve to take urgent steps to arrest the catastrophe is evident in the Paris Agreement of 2016 and the follow-up action proposed by each country including India.

LESSONS FROM ANCIENT INDIAN LEGAL THOUGHT

The Vedas (Rig-Veda, Sama-Veda, Yajur-Veda and Atharva-Veda) are the ancient literature known to mankinds which incorporate knowledge of all sorts, physical, material and spiritual – they are the source of all knowledge according to Manusmriti. It revolves around the concept of Life and Nature. The oldest and simplest form of Nature worship finds expression in Vedic texts. What is revealed in modern science finds parallel in Vedas. No wonder Nalanda and Taxila attracted students and scholars from all over the world for pursuit of knowledge including what was considered science at that time. The concept of environmentalism dates back to Vedic period as Vedas explain the relationship of Life in all forms in relation to land, water and air. Nature has maintained the balance in Universe and therefore the study of Nature was part of self-protection and survival from the very beginning in this land of Bharat.

Vedic approach to environment and ecology has engaged sages to understand the monsoon, thunder and lightning, flood and drought and the energy that sustains all these forces in such a manner to support Life in sustainable manner. They attributed divinity to these events as they are beyond men's control. They felt the order or balance found in Universe is "Rita" as it reduces chaos to cosmos and gives order and integration to matter. Rita is cosmic order found in Nature which no one can ignore or fail to acknowledge. It is controlling and sustaining energy, essential for Life. Earth is considered Mother in Atharva Veda as the Earth holds all the secrets of Nature.

Rig Veda describes water in its different forms and relates it to the sustenance of Life on Earth. It is the immediate cause of all organic beings and therefore has divinity in it. Water pollution is considered in Padma Purana saying "the person who pollutes waters in ponds, wells or lakes goes to hell".

Similarly Rig Veda mentions "O Air! You are our father, our protector". Air has medicinal values as it contains herbal elements and therefore it is the international physician that annihilates pollution and imparts health and happiness. Vayu God is worshipped for bringing health, happiness and long life to mankind.

Animals and birds are considered part of Nature and Rig Veda asks for protecting them. Similarly plants and vegetables which came to earth before the creation of animals are born out of water and they led to generation of food. The Atharva Veda mentions certain names of herbs (oushadhis) with their values. Later in India this knowledge has become a source for the growth of Ayurveda. Puranas say that "one tree is equal to ten sons", a profound way of conveying importance of forests for sustaining Life on Earth.

In Environment all elements are inter-related and impact on each other to maintain ecological balance to sustain life. Ancient seers knew about this balance and advised people to be part of Nature and respect all creations. 'Om Shanti' and "Vasudaiva Kutumbam" are expressions to convey this idea of inter-relationship and harmony in Nature developed in later period as environmentalism and sustainable development. Living in harmony with Nature propagated by Vedic texts is not merely in the physical sense but also in a spiritual sense as well. Ayurveda or life immortal is possible only when environment is unpolluted, clean and peaceful. Vedic message is clear that environment belongs to all living beings, so it needs protection by all, for the welfare of all. (Source:Origin of Environmental Science from Vedas by Ms. Shashi Tiwari).

ENVIRONMENT, THE CONSTITUTION AND THE IDEA OF SUSTAINABLE DEVELOPMENT

Realizing the importance of concerted action both by the State and the citizen for protecting the environment, the Indian Constitution has made it a duty on their part. Article 48A commands the State to protect and improve the environment and to safeguard the forests and wild life of the country. This is a Directive Principle of State Policy declared by the Constitution as fundamental in governance and a specific duty of the Central and State Governments to pursue while making laws.

Article 51 A(g) makes it the Fundamental Duty of every citizen to protect and improve the natural environment including forests, lakes, rivers and wild life and to have compassion for living creatures. This is a duty enforceable through courts.

In ancient Indian legal philosophy the object of environmental protection was subsumed in the concept of "Dharma" which is imperfectly translated into "that which sustains". The tradition of living in harmony with NATURE led to equating life and living creatures with divinity. Trees, forests, lakes, rivers and wild life became objects of worship for ancient Indians which neither the State nor the citizen could dare challenge. A duty-based environmentalism became part of Indian culture. The Britishers brought their concept of conquest of Nature and science-based acquisitive model of development in their colonies including India and made laws accordingly. It was assumed that Nature has infinite capacity to supply natural resources to support industrialization and increasing consumption would necessitate an expanding market that will lead to what was considered "development". Slowly but steadily, pollution spread everywhere and accidents increased threatening life and livelihood of people. Environment in relation to human activities became the focus of attention of the international community which met at Stockholm and came up with the notion of "sustainable development". The immediate reaction in some quarters was to put conservation as an obstacle to development. The report of the U.N.Commission on Environment and Development (Brundtland Commission, 1983) titled "Our Common Future" clarified the linkages between environment and development and interpreted "sustainable development" as the kind of development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

It was left to the Indian Supreme Court to articulate clean environment as part of the fundamental right to life and liberty of individuals under Article 21 and evolve an environmental jurisprudence consistent with human rights and sustainable development. The Court invoked the "public trust" doctrine and compelled the State to conform its development policies to ideas of conservation and sustainability. The precautionary principle and the polluter pays principle were freely adopted to get mining leases terminated, industrial projects modified and to entrench "sustainable development" as the organizing principle to balance environment with development. Environmental impact assessment and techno-scientific evidence became critical factors in judicial decision-making and the new rights-based environmental jurisprudence became part of development administration.

In this shift from duty-based environmentalism to rights-based environmental governance, one common thread which need emphasis is the "public trust" doctrine which is India's contribution to sustainable development discourse. The mainstreaming of human rights in international environmental law is now an accepted phenomenon; it is not yet fully recognized in national human rights instruments including the Constitution of countries. The ignorance of actors both of government and civil society on essential linkages between environment and human rights contributed to this state of indifference and consequent tolerance of environmental violations in the name of development. Hence the need for environmental education as integral to education generally and higher education in particular.

ENVIRONMENTAL LAW AND GOVERNANCE

To understand and appreciate environmental law in the present context, one must know where it comes from, what it contains, how and by whom it is administered, what it aims to achieve and with what tools, techniques and institutional arrangements.

From where does environmental law come from? The normal answer is that it comes from the State Legislature, like any other law. This is only partly true. Some others will say that it came out of disputes adjudicated before courts on contested issues relating to property, contract or human rights. Still others will argue that environmental law is the product of a country's history and culture evolved through interaction between man and environment over several centuries. All these points of view reflect the truth that environmental laws of various periods swing between individual rights of one generation and public interest and social justice concerns in the following. Environmental politics follows this pattern and oscillates between a period of public purpose and a time of private rights, a period of planned governance based on public interest and a time of free market economy taking priority over social concerns.

In India, environment was of very little concern in the beginning of the Republic and the item was not even listed as a subject in the division of powers between the Centre and States under the Constitution. This does not mean that environmental concerns were absent in India at the time of Constitution making. It was so integrated in Indian culture and history that environmentalism was taken for granted both by the State and the citizenry. However, the beginning of conservation politics and abatement of pollution dawned on those in charge of governance only in the 1980s

with legislative activism following the Stockholm Declaration. The judiciary soon took over and gave impetus to environmental consciousness by generating a set of principles for governments to follow in dealing with environment. Two significant principles long cherished by Indian legal thought found expression in judicial reasoning on environmental issues. One is about the application of the "public trust" doctrine and the other about the notion of public rights in the "Commons". *M. C. Mehta* v. *Kamal Nath* decided by the Supreme Court in 1996 reiterated the public trust doctrine in Indian environmental law under which the Court cautioned the State on its duty to protect ecologically fragile lands, water bodies, rivers, public parks, beaches, coal fields and air waves/spectrum. The public trust doctrine widely employed in governance in ancient India and popularized by Mahatma Gandhi in modern times, declared that natural resources like political power are held in trust by the State/rulers for the benefit of people living and yet to be born. The State is the trustee of all natural resources which are meant for public use and enjoyment. The State therefore is under a legal duty to protect the natural resources which, in turn, puts limits on governmental power in dealing with natural resources. Further, as a trustee, the State is obliged to take affirmative steps to protect the environment for the enjoyment of general public. In addition, public trust doctrine implies that whenever decisions are made in use of natural resources, it must be transparent and based on proper assessment of all relevant considerations including the rights of future generations.

The idea that natural resources are part of the Commons on which no single individual can claim private ownership is again part of ancient Indian wisdom. Even ownership on land was limited to use under certain conditions in native jurisprudence as evidenced in the situation still obtaining in tribal areas. Appreciation of ecological systems sustaining life and of the inter-relatedness of everything environmental in the global village, strengthened environmental awakening and the need to promote public rights in the Commons for sustainable development.

ENVIRONMENTAL LAW, SUSTAINABLE DEVELOPMENT AND HIGHER EDUCATION

Having analyzed the objects, concerns, content and sources of environmental law, what remains for consideration before us is the role of higher education in the matter of environmental protection and sustainable development. Given the involvement of higher education in developmental goals and activities, it is imperative that it should be informed by sustainability as dictated by the Constitution and the

laws. In other words, awareness of the environmental regime and the duties it casts on individuals and state agencies must necessarily find place in the curriculum of universities and colleges across disciplines and courses of studies.

As early as 1991, in *M. C. Mehta* v. *Union of India*, the Supreme Court ordered environmental education to be introduced as a compulsory subject in schools and colleges. The Supreme Court left it to the authorities of school and college education to prescribe the syllabus and make it part of the mandatory curriculum across courses of studies. This order of the Supreme Court was followed up by a subsequent order in 2003 wherein the Court directed the National Council for Educational Research and Training (NCERT) to prepare a model syllabus for different grades. The NCERT model syllabus for Grades 1 to 12 was later recommended by the Court for introduction by States and the Court even went on to monitor its implementation. In spite of the importance given by the apex court, the subject appears to have not received the attention it deserves in the scheme of things.

In higher education, the University Grants Commission prepared a common syllabus and informed the court that it was overseeing its implementation. There is no credible information available on how the orders of the Supreme Court are being implemented by the nearly 80,000 colleges and 800 Universities in the country offering innumerable courses both in under-graduate and post-graduate education. Even if the subject is part of the curriculum, it is not known whether it is being taught by teachers qualified in the subject with the required importance directed toward shaping attitudes and behavior of the youth. Further, no one knows what impact it makes on the learners in terms of knowledge, skills and attitudes for advancing the cause of environmental protection Ultimately it is upto the management of colleges and universities as well as the faculty involved in the programmes of instruction to give the treatment the subject deserves in securing what the Brundtland Commission called, "Our Common Future".

Ladies and Gentlemen, it is not my intention to engage you in a long drawn discourse on law and practice relating to environment. However, I believe that higher education is incomplete without adequate understanding of the implications of the "environment vs. development debate" which holds the key to our common future. The world is passing through a series of crises most of which are man-made arising from the acquisitive urge among the so-called educated persons and the reckless ways in which it is pursued, despite the laws and sanctions. It appears that the world is in need of new ways of thinking to solve common problems and the more it is

delayed, the more complex and costly the solutions would become. As such, responsible citizens have to take the initiative to use the platform of higher education to influence public opinion on the need to take urgent steps to imbibe the principles of sustainable development and desist from such things like polluting the environment and dealing with natural resources irresponsibly.

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2

MINING CASES IN INDIA, WITH A SPECIAL FOCUS ON VEDANTA

Prof. (Dr.) Armin Rosencranz and Manan Shishodia

- *Introduction*
- *Kudremukh*
- *Bellary*
- *Lafarge*
- *Vedanta*
- *POSCO*
- *Conclusion*

2

MINING CASES IN INDIA, WITH A SPECIAL FOCUS ON VEDANTA

*Prof. (Dr.) Armin Rosencranz and Manan Shishodia**

INTRODUCTION

The Supreme Court of India has been actively involved in the protection of the environment in the last decade, especially on issues pertaining to mining.[1] It seems valuable to study the litigation pertaining to mining as it is a chief revenue-generating activity that contributes substantially to the nation's economy.

In this article, we will analyze five landmark mining cases:

a) *Kudremukh Iron Ore Company Ltd. (KIOCL)* v. *Legal Action for Wildlife and Environment* (2002) referred to as the"Kudremukh Mining Case"; b) *Samaj Parivartana Samudaya & Ors.* v. *State of Karnataka & Ors.*(2011) referred to as the "Bellary Mining Case"; c) *Lafarge Umiam Mining Pvt. Ltd.* v. *Union of India (UOI) and Others (2011); d) Orissa Mining Corporation Ltd.* v. *Ministry of Environment and Forest and Ors.*(2013) referred to as the "Vedanta Cases"; and e) the POSCO case (2015).

Of all the five mining cases discussed below, the Vedanta case seems to have broken important new ground. The usual pattern is for the government, in league with the

* Armin Rosencranz is a professor of law, O.P. Jindal University, where Manan Shishodia is a 4th year law student. The authors are grateful for the research and critical review of Gaurav Bhawnani and Ashrutha Rai of the National Law School of India University, Bangalore and Vidhi Thukral of Jindal Global Law School, O.P. Jindal University. The author can be contacted at armin@stanford.edu.

1 The mining activities in India are regulated and managed by the Central Pollution Control Board (mainly for air and water pollution), Ministry for Environment and Forests, State Mines and Geology Department and Indian Bureau of Mines. The mining companies are often found in non-compliance with the environmental regulations due to poor monitoring and rent-seeking activities by these bodies.

private sector, to use its power of eminent domain to take over tribal lands and make them available for developers – in this case the Vedanta/Sterlite aluminum company. Vedanta wanted to mine the bauxite-laden Niyamgiri Hills, whose lands are occupied by tribal people.

In this case, unexpectedly, the Supreme Court in 2013 turned down Vedanta on the basis of the Forest Rights Act, 2006, and that Act's provision for a referendum among project-affected-people to consent to any takeover of land occupied by them. Such a referendum was held in 2013 in 12 Gram Sabhas. All 12 unanimously rejected the Vedanta project. The Supreme Court obviously took this into account in its decision, and the MoEF supported this development.

While this change seems almost unprecedented, and may not indicate a conscious policy choice by the Supreme Court, it seems the most noteworthy development among all the mining cases discussed below.

KUDREMUKH

In the Kudremukh Case[2], it was stated that the Supreme Court of India brought down the mining operation that was causing havoc in the Western Ghats of Karnataka.

Kudremukh Iron Ore Company Limited ("KIOCL") had been carrying out mining operations for more than three decades on a 30-year lease granted by the Government of Karnataka in 1969.[3] When the KIOCL mining lease was first granted there were no legislations such as the Wildlife Protection Act, 1972, the Forest Conservation Act, 1980 and the Environmental Protection Act, 1986 in force to stop the mining operation.

By way of temporary extensions, the company continued its mining operations after the expiry of the lease. In 2002, the company wanted to exploit the adjoining mining area called Nellibeedu. This region fell under the jurisdiction of a national park[4] and became a contentious issue for the company. The people living in Tunga and Bhadra area[5] vehemently protested against the extension of mining activity. Protesters gathered

2 ILR 2005 Kar 4500.

3 VK Sridhar, Supreme Court: Mining, Forest Encroachments and Rehabilitation from Kudremukh National Park, Social Change and Development, Vol. XII No.1, 2015.

4 KN Murthy and DVR Seshadri, Kudremukh Iron Ore Company Limited (KIOCL): The Death Knell and Beyond, Vikalpa Vol. 36, No. 2 April - June 2011.

5 http://india.indymedia.org/en/2002/08/1972.shtml.

on river Bhadra which was polluted by the iron slurry and silt from Kudremukh's open casting mining. The river pollution was just one of the many adverse effects of the mining operations at Kudremukh.

On considering the geographical location of this mine, the following observations were made by the Court: a) Open Cast Mining is a highly destructive activity and Kudremukh is one of the worst places to have situated such an operation; b) the hill slopes are steep, and the region receives a mind boggling 6500 mm of rain a year.[6] It was declared that the mining activity had many long-term ecological impacts, including environmental degradation and a spoiled ecosystem for future generations.

BELLARY

In the Bellary Mines Case[7], the Supreme Court heard a Public Interest Litigation [PIL] filed by the Karnataka-based non-profit, Samaj Parivartana Samudaya, led by activist S.R.Hiremath. The NGO was assisted by the Central Empowered Committee (CEC).

Bellary is a poor district but endowed with a huge iron ore reserve. India changed its mining policy in 1993 which encouraged mining by private entities.[8] This shift in the policy led to a surge in demand for iron ores. In 2008 the demand was further increased for iron ore from China to prepare for its 2008 Olympic Games.[9]

The potential to make profits from this demand for iron ore may have induced people to indulge in illegal means as well. The mining activities blatantly violated various provisions of law, including the Environment Protection Act, 1986, Mines and Minerals Development and Regulation Act, 1957 and Forest Conservation Act, 1980.[10] The Karnataka Minister of Tourism, Janardhan Reddy, served more than three years in prison for his illegal mining activities.[11]

6 The Kudremukh Saga—A Triumph for Conservation, http://www.conservationindia.org/case-studies/the-kudremukh-saga-a-triumph-for-conservation-2, last accessed 03-03-2016.

7 *Samaj Parivartana Samudaya & Ors.* v. *State of Karnataka & Ors.*, WRIT PETITION (CIVIL) NO. 562 OF 2009.

8 http://www.mines.nic.in/UserView?mid=1319.

9 Kumar Sambhav Shrivatsava, How Bellary was Laid Waste, Down to Earth, 31 August 2011.

10 *Id.*

11 See Rosencranz and James, "State Minister Jailed: Illegal Mining in Bellary," Env. Policy and Law, 45/1 (2015).

The Lokayukta prepared its report in 2008 to take immediate actions to stop the illegal mining. This report was completely ignored by the state government. Then in 2011, the second report of the Lokayukta was submitted which created an uproar and got the attention that was required from the state government.

The Supreme Court held, "the recommendations of the CEC contained in the Report dated 15.2.2013 for reopening of remaining Category "A" mines and Category "B" mines (63 in number) and sale of sub-grade iron ore subject to the conditions mentioned in the said report are approved."[12]

The Supreme Court of India seems to find it difficult to reach a consensus on issues of environmental law. This is due, in part, to the frequent change in the benches and rosters which make it difficult to have consistency in deciding the mining issues the country is grappling with.

LAFARGE

In the Lafarge Case[13], the Supreme Court dealt with the proposal of Lafarge Ltd. for setting up a limestone mine in the forests of Meghalaya. The Supreme Court, on the basis of the due diligence exercise undertaken by the MoEF in the matter of forest diversion, permitted the operation of the limestone mine.

It stated, "Limestone mining has been going on for centuries in the area: it is an activity which is intertwined with the culture and the unique land holding and tenure system of the Nongtrai Village."[14]

In the preliminary submissions, Lafarge had pleaded that the project was a cross-border project and that it had put in ten years of efforts for obtaining approvals. The CEC report stated that the total clearing includes felling of 9345 trees out of which 1200 trees have already been felled. CEC said the tree-felling impact can be minimized if the Bio-Diversity Management Plan as well as the Catchment Area Treatment Plan is prepared and executed in a time bound manner. Presumably this involves extensive planting of trees.

12 SC eases mining ban, big relief for Bellary steel maker, http://www.businesstoday.in/current/policy/supreme-court-karnataka-mining-bellary-steel-makers/story/194222.html, last accessed on 03-03-2016.

13 *Lafarge Umiam Mining Pvt. Ltd.* v. *Union of India (UOI) and Others*, 2011 (7) SCC 338.

14 Supreme Court allows mining by Lafarge, http://www.thehindu.com/news/national/other-states/supreme-court-allows-mining-by-lafarge/article2164106.ece, last accessed 02-03-2016.

The Court declared that the MoEF, EIA and Stage-I forest clearances must be granted. For the future generations, it was held."Thus, we are of the view that under Section 3(3) of the Environment (Protection) Act, 1986, the Central Government should appoint a National Regulator for appraising projects, enforcing environmental conditions for approvals and imposing penalties on polluters." The executive has thus far refused to appoint a National Regulator.

In Lafarge, the Supreme Court seemed to rely heavily on the submissions of the MoEF. The project had not been granted MoEF clearance initially, but in the second due–diligence adopted by the Ministry, the project received its green signal.

Apropos the judgment, MoEF recently further streamlined environmental clearance norms for projects requiring forest land. By an order dated September 9, 2011, projects will now be eligible to be considered for site clearance even as their application for forest diversion is under consideration.

In order to safeguard against misuse, the order requires the project developer to submit certain supporting documents from the forest authorities at the state or central level stating that an application for forest clearance is in place. Once the environmental appraisal committee makes a recommendation and the ministry takes a final decision on the environmental clearance for the project, the project developers would be informed of the decision. This reverses the earlier decision of MoEF to tighten guidelines in an effort to reduce the diversion of forests by making it a last resort option.

VEDANTA

In the Vedanta Case[15], Vedanta Resources Plc, a UK mining company, proposed in 2005 to develop a bauxite mine in the Niyamgiri hills in Odisha that is sacred to many scheduled tribes.

The case was filed initially in 2004 and the CEC on 21st September 2005 filed its report to the Supreme Court. It specifically recommended for the revocation of the Environmental clearance to the Refinery. The CEC made strong observation on the functioning of the State and pointed to the casual, lackadaisical approach and the haste of the MoEF.[16]

15 *Orissa Mining Corporation Ltd.* v. *Ministry of Environment and Forest and Ors,* 2013 (6) SCC 476.
16 Rajshree Chandra: "Understanding change with (in) law: The Niyamgiri case", Contributions to Indian Sociology 50, (2), pp. 1–26. 2016 SAGE Publications.

The MoEF accepted the fact that the studies were not complete and informed the court that the Wildlife Institute of India and CMPDI will be entrusted with the task of ascertaining the impact due to the proposed mining.[17]

The Central Empowered Committee [CEC] set up by the directions of the Supreme Court concluded in 2005 that mining in the Niyamgiri Hills would cause immense harm to the biodiversity of the area and the lives of the Dongria Kondh tribal whose lives, culture and very existence are deeply linked with the Niyamgiri Hills.[18] Furthermore, the CEC highlighted that the area targeted by the company forms part of "Schedule V" area as specified by the Constitution. Schedule V provides protection to the adivasi people living in these areas.[19]

On 23 November 2007, the Supreme Court barred Vedanta and its subsidiary Sterlite from undertaking the project. However, the court invited Vedanta to resubmit its proposal in line with certain safeguards.[20]

The safeguards included: a special purpose company with the state of Orissa and Vedanta as shareholders owning the project, Vedanta setting aside 5% of its profits before tax for reinvestment into the local community; and the submission of a report on the effects of the project and particularly the number of people likely to be employed by the project.[21] The Supreme Court gave the green signal to the project on 8 August 2008.[22]

When it reconsidered the case in 2013, the Apex Court left to the Gram Sabhas the power to veto the project. The Vedanta proposal was unanimously rejected by 12 village Gram Sabhas in the Niyamgiri hills in August 2013. On January 2014, the MOEF decided not to allow the continuation of the mining project.

17 Open Letter to the Chief Justice of India by Dr. Flavio Valente, Secretary General FIAN International, Link: http://www.fian.org/library/publication/india_orissa_indigenous_people_appeal_for_justice/, last accessed 09-06-2016.

18 Sahu, Geetanjoy, 'Mining in the Niyamgiri Hills and Tribal Rights', Economic and Political Weekly, Vol. 43 (15), 12 April 2008.

19 Central Empowered Committee Report in IA NO. 1324 Regarding the Alumina Refinery Plant being set up by M/s Vedanta Alumina Limited at Lanjigarh in Kalahandi District, Orissa (2005).

20 Vedanta Resources lawsuit (Re: DongriaKondh in Orissa), http://business-humanrights.org/en/vedanta-resources-lawsuit-re-dongria-kondh-in-orissa, last accessed 13-05-2016.

21 *Id.*

22 *Id.*

The Supreme Court acknowledged that many of the Scheduled Tribes [STs] are unaware of their rights. In addition, they experience difficulties in obtaining effective access to justice because of their distinct culture and limited contact with mainstream society.

The apex court stated, "[Gram]Sabha functioning under the Forest Rights Act read with Section 4(d) of Panchayats (Extension of Scheduled Areas Act) have an obligation to safeguard and preserve the traditions and customs of the STs which they have to discharge following the guidelines issued by the Ministry of Tribal Affairs in its letter dated 12.7.2012."[23]

The Court recognized that the Forest Rights Act (2006) gave Gram Sabhas the authority to decide whether a proposal for mining in their territory should be granted. The Gram Sabha heard all the individuals as well as cultural and religious claims before making such a decision.

The right which gave legitimacy to such claim is under Article 244(1), Article 243-B, Article 25 and Article 26 of the Constitution of India.[24]

The company (Vedanta Resources Plc.) strategically delinked the refinery from the mining process to try to convince the Court that the bauxite was not being extracted from the Niyamgiri Hills.[25]

The Vedanta case is an interesting case as it gave rise to the first "environmental referendum"[26] in India through the active participation of the local tribes. It contrasts the usual disregard for the interests of tribals with the focus on the rights of indigenous people under the Forest Rights Act, 2006.

However, the Ministry of Environment and Forests ["MoEF"] issued an executive memorandum on 30th May 2014[27] which stated, "No public consultation would

23 Ministry of Tribal Affairs, http://tribal.nic.in/Contents.aspx?mo=7&li=27, last accessed 14-04-2016.

24 Article 244: Administration of Scheduled Areas and Tribal Areas.
Article 243B: Constitution of Panchayats.
Article 25: Freedom of conscience and free profession, practice and propagation of religion.
Article 26: Freedom to manage religious affairs.

25 Kanchi Kohli: "Return to the Niyamgiri", Civil Society (April 2016).

26 Jo Woodman, "India's rejection of Vedanta's bauxite mine is a victory for tribal rights", available at:http://www.theguardian.com/global-development/poverty-matters/2014/jan/14/india-rejection-vedanta-mine-victory-tribal-rights(last accessed on 31.03.2016).

27 "Guidelines for granting Environment Clearance for extension of Coal Mining Projects involving one time Production Capacity Expansion in the existing operation", available at: http://www.moef.nic.in/circulars, Circular No 17.

be required for coal mining projects with a production capacity of upto 16 million tonnes per annum ("mtpa")."[28] Subsequent to this, the exemption extended for the production of an additional capacity by up to 5 mtpa, i.e., a total of 21 mtps.

These actions of the government imply that the right to public consultation is considered a road block, which is why the MOEF has taken steps to undermine the process of environmental impact appraisal. This has two main problems: a) it does not wholly consider the environmental impact of the project; and b) the rights of indigenous people are suppressed and ignored.

The massive reverse in the decision of the Supreme Court must be noted. The Vedanta case is an example of the variability in judgement arising from the same institutional establishment. In the course of two decisions, the composition of the two benches of the Supreme Court had completely changed, and the more recent Court had no regard for the Court's own earlier precedent.

As the average tenure of Supreme Court judges is four years, such a massive shift in decision making is not unexpected. The Supreme Court themselves acknowledged this by saying, "Our interim orders in favour of big corporate groups such as Adani, Essar and Vedanta may have blocked thousands of crores that could have been used by governments for public welfare."[29]

The Vedanta case illustrates the Supreme Court's undue reliance on both CEC and MoEF, rather than relying on its own application of mind and an effort to achieve consistency among its judgments. Most recently, the Supreme Court dismissed a petition by state government-owned Odisha Mining Corporation (OMC) that challenged the decision of 12 Gram Sabhas to refuse permission to mine bauxite in the Niyamgiri hills. The bench told OMC to approach appropriate forums against the decision of the Gram Sabhas.[30] Since the 12 gram Sabhas were unanimous in

28 Changes to environment, land acquisition laws jeopardize human rights https://www.amnesty.org.in/show/news/changes-to-environment-land-acquisition-laws-jeopardize-human-rights (last accessed on 2nd March 2016).

29 Utkarsh Anand: "Our stays deprive Govt. of dues, help Adani, Essar and Vedanta: Supreme Court" – Available at: http://indianexpress.com/article/india/india-news-india/our-stays-deprive-govt-of-dues-help-adani-essar-and-vedanta-supreme-court/#sthash.yWCOC0Zo.dpuf, last accessed 14-05-2016.

30 Priyanka Mitall, Supreme Court refuses to hear fresh plea on Niyamgiri mining: http://www.livemint.com/Politics/j6VbxqCtcUl69WRHvKIZ4M/SC-dismisses-petition-against-local-mining-refusal-consensus.html, last accessed 16-05-2016.

their 2013 rejection of the project, it seems highly unlikely that they would now change their minds.

POSCO

Lastly, in the POSCO case, the Supreme Court intervened in the question pertaining to large land and port facilities to the giant South Korean steel maker POSCO in Khandadhar hills in Sundergarh district for its proposed Rs 51,000 crore steel plant[31] and collateral mining operations.

On June 22, 2005, POSCO had signed a Memorandum of Understanding (MoU) with the Odisha government to set up a 12 million tonne Greenfield steel plant near Para dip at a cost of $12 billion. This was soon opposed by POSCO Pratirodh Sangram Samiti (PPSS), formed to resist the project. On December 29, 2009, MoEF had granted final clearance for diversion of forest land for POSCO.

The Odisha High Court cancelled the grant of a Prospecting License (PL) to POSCO for Khandadhar iron ore mines. Subsequently, MoEF lifted the stop work order on POSCO, but soon afterward the National Green Tribunal suspended the environment clearance granted to POSCO. The POSCO project seems now to have been abandoned.

CONCLUSION

Extraction of any resource at the stake of indigenous peoples' rights is a problematic situation. The unity and conviction with which small communities have protested against big companies and the state seems admirable.

The victory against Vedanta by the Dongria Kondh tribe reflects several struggles that the tribe had to go through. For many, the tribe may just appear as a group of people who are vulnerable and not well aware of their fundamental rights. Such victories of tribes should compel big companies and industrialists to take a cautious approach towards their expansion plans.

In most of these cases, the Supreme Court seems to have routinely acceded to the recommendations made by independent bodies such as the Saxena Committee and the CEC. The Court seems unable to firmly decide on the prospective harm that can

31 *Id.*

be done by mining activities, as clearances are likely to be obtained through MOEF, which eventually and almost invariably clears the project.

In Vedanta, the Forest Rights Act, 2006 and the Gram Sabha referendum clearly weighed in the resulting decision. The Court members may not be aware that they departed from their usual practice of enabling the government's use of eminent domain to convert local and tribal lands to benefit corporations like Vedanta. It will take one or more additional cases where local/tribal interests oppose corporate interests to demonstrate whether Vedanta is sui generis or the beginning of a new trend in Supreme Court decisions.

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3

SUPREME COURT BAN ON DIESEL VEHICLES: WHETHER THE LAW ON ABATEMENT OF AIR POLLUTION IN INDIA HAS BEEN EFFECTIVE?

Dr. Sairam Bhat and Sharan Balakrishna

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Dr. Sairam Bhat and Sharan Balakrishna***

INTRODUCTION

In the 1980s, the city of Delhi gained an infamous reputation for really high levels of pollution and rapidly decreasing air quality and at the time several Public Interest Litigations by famed environmental lawyer M.C. Mehta, saw the enactment of a slew of long term measures that significantly improved the air quality in Delhi. In the first among many measures in which judicial activism was exercised by the Supreme Court, heavy industries such using brick kilns or induction furnaces in NCR Delhi were mandated to either switch to cleaner fuels such as CNG or relocate outside the NCR.[1] The Court then banned the further registration of auto rickshaws using two stroke petrol engines in the NCR and directed a switch to either clean fuels such as CNG or four stroke engines.[2]

The streak of judicial activism exercised by the Supreme Court then continued in the form of the orders dated 28th July, 1998 and 26th March, 2001 in the case of *M.C. Mehta* v. *Union of India & Ors*[3], a Public Interest Litigation filed by environmental lawyer M.C. Mehta. The first order, passed in 1998, mandated a number of measures suggested by the Bhure Lal Committee, which was appointed to suggest measures to curb air pollution in Delhi, such as:

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1 *M.C. Mehta* v. *Union of India*, (2006) 3 SCC 399.

2 *M.C. Mehta* v. *Union of India*, (1998) 1 SCC 676.

3 *M.C. Mehta* v. *Union of India & Ors*., Writ Petition (Civil) 13029 of 1985.

- Conversion of all public transport buses in Delhi to clean fuel in the form of CNG (by 31st March, 2001)
- Conversion of all buses older than 8 years to CNG (by 31st March, 2001)
- Replacement of all pre 1990s auto rickshaws and taxis to new vehicles on clean fuels (by 31st March, 2001)
- Financial incentives for replacement of all post 1990 autos and taxis with new vehicleson clean fuels (by 31st March, 2001)
- Phasing out of leaded petrol from NCT Delhi (by 9th September, 1998)
- Augmentation of public transport to 10,000 buses
- Supply of only pre-mix petrol in all petrol filling stations to two-stroke engine vehicles (by 31st December, 2000)
- New ISBTs to be built at entry points in North Delhi (by 31st March, 2001)
- GAIL to expedite and expandfrom 9 to 80 CNG supply outlets (by 31st March, 2000)
- CPCB/DPCC to set up new stations and strengthen existing air qualitymonitoring stations for critical pollutants (by 1st April, 2000)

The second order was a result of number pleas by the executive for an extension for the fulfilment of the first order passed in 1998, having been ill prepared to meet the original deadline. The Court however took a very hard stance and granted an extension of 6 months only to those parties who could show that substantial efforts were being made to procure new vehicles or convert their vehicles to CNG. Given the fact that vehicular pollution contributes 43% of all air pollution, the Supreme Court views the switch to CNG as crucial for the improvement of Delhi's air quality in the long run.

Though initially several arguments were made doubting the actual effectiveness of the use of CNG as a clean fuel, as opposed to the alternative of ultra-low sulphur diesel (ULSD), including a study by Tata Energy Research Institute[4] (TERI) which

4 *Diesel to CNG: From one villain to another?*, The Hindu, 28th March 2001, available at: http://www.thehindu.com/2001/03/28/stories/14282181.htm;
The gas war hots up, India Today, April 16th 2001, available at: http://indiatoday.intoday.in/story/cng-to-face-competition-from-ultra-low-sulphur-diesel/1/232515.html.

was widely used by the Delhi administration to argue against the move towards CNG. However, this opposition slowly faded away as this study was shown to be inaccurate[5] and the move has since been hailed as an excellent step which produced the world's cleanest public bus system, and played a significant role in reducing the air pollution in Delhi.[6] Adding to this, the complete phasing out of leaded fuel in the capital reduced the amount of lead in the atmosphere by around 60%.[7]

Another example of such judicial activism on the part of the Apex Court in curbing air pollution was seen in the *Taj Trapezium Case*[8], where the Court directed all industries in the vicinity of the Taj Mahal to convert to CNG fuel or relocate to outer limits of the city, directed the State Government to ensure 100% uninterrupted electricity to the Taj Trapezium Zone to prevent the use of generators, and ordered the construction of an Agra bypass road to prevent vehicles not bound for Agra from passing through it.

Reviving this streak of activism, on the 16th of December, 2015, the Supreme Court passed an order banning the registration of private diesel vehicles with an engine capacity higher than 2000cc until the 31st of March, 2016. The ban was then further extended by the Court on multiple occasions[9], and then finally lifted by the Court by an order dated 12th August, 2016 after a considerable number of pleas from the

5 *Clean Air: Myths and facts about CNG*, Centre for Science and Environment – Rainwater Harvesting, available at: http://www.rainwaterharvesting.org/cse/campaign/apc/myths_facts/myth1.htm; *Sabotage*, Down To Earth, 30th September 2001, available at: http://www.rainwaterharvesting.org/cse/campaign/apc/myths_facts/myth1.htm.

6 *CNG Delhi – the world's cleanest public bus system running on CNG*, The Product-Life Institute, available at: http://www.product-life.org/en/archive/cng-delhi;
Sandhya Wakdikar, *Compressed natural gas: A problem or a solution?*, CURRENT SCIENCE, VOL. 82, NO. 1, 10 JANUARY (2002);
Urvashi Narain and Alan Krupnick, *The Impact of Delhi's CNG Program on Air Quality*, Resources For The Future, RFF DP 07-06, February 2007.

7 GORDON MCGRANAHAN & FRANK MURRAY, AIR POLLUTION AND HEALTH IN RAPIDLY DEVELOPING COUNTRIES, 1st Ed. 2003, Earthscan Publications.

8 *M.C. Mehta (Taj Trapezium Matter)* v. *Union of India*, (1997) 2 SCC 353.

9 *Apex court extends ban on sale of large diesel cars in New Delhi*, Business Line – The Hindu, 31st March 2016, available at: http://www.thehindubusinessline.com/news/ban-on-sales-of-luxury-diesel-cars-in-delhi-to-stay-till-april-30-apex-court/article8418076.ece;
Supreme Court extends stay on registration of diesel vehicles above 2000 cc in Delhi-NCR region, Indian Express, 30th April 2016, available at: http://indianexpress.com/article/india/india-news-india/supreme-court-extends-stay-on-registration-of-diesel-vehicles-in-delhi-ncr-region-2777835/.

Central Government and various automobile manufacturers such as Mercedes-Benz, Toyota-Kirloskar and the lobby group Society for Indian Automobile Manufacturers (SIAM), citing reasons such as a severe drop in sales and the stalling of overseas investment in the automobile market[10].

This surprising reversal by the Supreme Court was accompanied by the imposition of an environmental cess of 1% on the ex-showroom price of all new private diesel vehicles with an engine capacity of 2000cc or higher. The author intends to critically analyse the judgment of the Court, the efficacy of the ban imposed by the Court and its subsequent repeal, and gauge whether the ban actually served the purpose of reducing the air pollution levels in the Delhi NCR Region. Furthermore, as similar problems are already affecting or soon will affect several other cities in India, therefore looking at possible solutions and their efficacy would prove to be invaluable in the years to come.

ANALYSING THE DIESEL BAN

The gains of the abovementioned first switch to CNG have now largely been negated by the exponential rise in the number of vehicles in Delhi, and it now has the dubious distinction of being the most polluted city in the world.[11] And hence in the last couple of years, the Supreme Court has once again stepped in and begun the second wave of activism in this regard, trying to compensate the Executive's woeful inaction. In November 2015, the Court sought to use the CNG route once again and ordered all taxi aggregators using All India Tourist Permit (AITP) vehicles to mandatorily switch to CNG. Finally on 16th December, a three judge bench of the Court chaired by CJI T.S. Thakur banned the registration of private diesel vehicles with an engine capacity larger than 2000cc[12]. The relevant part of the judgment reads –

> *"Having given our anxious consideration to the submissions made at the Bar, we are of the view that the new commercial light duty diesel vehicles can for the present*

10 *SC lifts ban on sale of diesel cars in Delhi, imposes 1% green cess*, Livemint, 13th August 2016, available at: http://www.livemint.com/Industry/yHP6xg0RFW8hT4OxP5tywN/SC-lifts-diesel-car-registration-ban-in-Delhi-NCR-with-rider.html.

11 James Griffiths, *New Delhi is the most polluted city on Earth right now*, CNN, 8th November 2016, available at: http://edition.cnn.com/2016/11/07/asia/india-new-delhi-smog-pollution.

12 Order dated 16th December 2016, *M.C. Mehta* v. *Union of India & Ors.*, Writ Petition (Civil) 13029 of 1985, available at: http://supremecourtofindia.nic.in/FileServer/2015-12-16_1450256085.pdf.

> *continue being registered in Delhi on account of the dependence of the public on such vehicles for supply of essentials. There is, however, no reason why registration of private cars and SUVs using diesel with an engine capacity of 2000 cc and above should not be banned up to 31st March, 2016. It is noteworthy that diesel vehicles of 2000 cc and above and SUVs are generally used by more affluent sections of our society and because of the higher engine capacity are more prone to cause higher levels of pollution. A ban on registration of such vehicles will not therefore affect the common man or the average citizen in the city of Delhi.*"

As stated earlier, the ban was extended indefinitely and only removed on 12th August 2016. The reasoning for such a ban itself cannot be faulted, as it undoubtedly true that such vehicles cause the most pollution and are generally used by the more affluent sections of society. However, it was evident from the very outset that such a move was only a temporary option and what was important was how the Court approached the long term solution to the problem.and when the ban was finally removed, the Court imposed a 1% environmental cess on the new registrations of the said vehicles that were banned.[13]

Herein lies the problem that the subsequent move of the environmental cess is not going to be effective in curbing air pollution in Delhi. Especially in comparison to the move in 2001 to switch the public transport system to CNG, which had a long term positive impact on air quality in Delhi[14], the current move doesn't seem likely to have any deterrent effect on the registration of diesel vehicles in Delhi[15] and is unlikely to incentivise persons to move towards cleaner fuels. Diesel cars above 2000cc are generally highly priced and owned by affluent sections of society, and a cess of 1% will not make a substantial difference in the price of such a vehicle, at least not to serve as a deterrent to the affluent persons buying these cars. Furthermore, the government is of the view that the right to levy a cess is a legislative right and not one that can be exercised by the Court. However regardless of whether that maybe the case, the author is of the view that the Supreme Court has not really succeeded in addressing the long term problem at hand.

13 *Supra* note 3.

14 *Supra* note 6.

15 *1% environment cess not a deterrent, say activists on SC's diesel vehicle order*, Hindustan Times, 13th August 2016, available at: http://www.hindustantimes.com/delhi/1-environment-cess-not-a-deterrent-say-activists-on-sc-s-diesel-vehicle-order/story-zja10lTlezum Zd8 Gun8WsJ.html.

LOOKING AT LONG TERM ALTERNATIVES

In contrast to the situation in 2001, where the Court ordered the transformation of the public transport system in Delhi, since the Court is here dealing with the control of private vehicles, a vastly different approach is required. Therefore a measure such as a ban was only ever going to work as a temporary measure. The Court and the administration now need to look at feasible long term alternatives to tackle the problem. The role of the environmental regulator in India is filled by the Central Pollution Control Board (CPCB), augmented by the State Pollution Control Board in the various states. However the role of the State Board in the Union Territory of Delhi is performed by the Delhi Pollution Control Committee (DPCC). There is a dire need for the Government of Delhi, to collaborate with the DPCC and the CPCB (wherever measures are required outside the territorial jurisdiction of the CPCB) in implementing these viable long term measures. The author has analysed a few of the possible long term measures that could be applied in Delhi below.

Providing Incentives for Hybrid Vehicles

Another important aspect to look at would be to incentives for the use of hybrid and electric cars in India in general and Delhi in particular. A step in this direction has been taken by the central government in the form of the FAME India (Faster Adoption and Manufacturing of Hybrid and Electric vehicles in India) scheme, which offers incentives for electric and hybrid vehicles of up to Rs 29,000 for bikes and Rs 1.38 lakh for cars.[16] The scheme has already increased the demand for electric and hybrid vehicles, and the National Automotive Board states that 106,524 vehicles are already registered under the scheme, with about 10, 647 of those vehicles in Delhi.[17] Though this may not seem like a substantial number, this is bound to increase with several automobile manufacturers such as Maruti Suzuki and Tata Motors planning to release

16 *FAME India: Govt scheme offers up to Rs 1.38 lakh incentives for electric, hybrid vehicles*, First Post, 9th April 2015, available at: http://www.firstpost.com/business/fame-india-govt-scheme-offers-up-to-rs-1-38-lakh-incentives-for-electric-hybrid-vehicles-2189845.html;
FAME India Scheme – Putting e-mobility on road, Report on Electric Mobility, available at: autotechreview.com/news/item/download/527.html.

17 *FAME India scheme puts demand for hybrid vehicles in top gear*, The Economic Times, 3rd May 2016, available at: http://economictimes.indiatimes.com/articleshow/52090824.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst;
FAME India, National Automotive Board, available at: http://www.fame-india.gov.in/dashboard.aspx.

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vehicles in this segment.[18] With the recent release of Volvo's hybrid vehicle, the V40, the manufacturer has urged the government that these incentives need to be increased to see a significant transfer of the consumers to clean fuels.[19]

Conversion or Relocation of Industries

Another option that is available to the administration is either the conversion or relocation of industries to outside city limits. A similar move was adopted by the Court in the Taj Trapezium Case, where the industries were ordered either to switch to a CNG power source or relocate to outside the prescribed limits in the city.[20] This would be a really important step as several industries are still located in NCT Delhi's residential areas and are having a significant detrimental effect on the air quality in the city.[21] Some measures in this direction have been planned by the authorities, although whether they can be effectively implemented would be crucial to the air quality in Delhi.

The Haryana State Pollution Control Board has planned to categorize industries in Gurgaon into 'Red', 'Orange', 'Green', and 'White' in descending order of adverse impact on the environment, according to criteria developed by the Ministry of Environment, Forests and Climate Change (MoEF). 'White' industries would not require any sort of environmental clearances, whereas the other types of industries would have varying amounts of time to relocate from residential areas to the outskirts.[22] A similar attempt is being made by the Gautama Budh Nagar Administration which directed all industries in Noida and Greater Noida to switch to Piped Natural Gas (PNG) or face closure, but the move has been met with scepticism form most of the industrialists who claim that they cannot afford the high cost of conversion to

18 *Supra* note 14. [Fame India First Post].

19 *Volvo unveils new models, urges Govt to incentivise hybrid cars*, The New Indian Express, 17th December 2016, available at: http://www.newindianexpress.com/business/2016/dec/17/volvo-unveils-new-models-urges-govt-to-incentivise-hybrid-cars-1549979.html.

20 *Supra* note 8.

21 *Industries in residential areas derail Delhi's war on pollution*, India Today, 11th July 2015, available at: http://indiatoday.intoday.in/story/poison-capital-delhis-war-on-pollution-yamuna-river-ngt/1/450636.html.

22 *Gurgaon: Polluting industries to be moved out of housing areas*, Hindustan Times, 22nd August 2016, available at:http://www.hindustantimes.com/gurgaon/gurgaon-polluting-industries-to-be-moved-out-of-housing-areas/story-VdrO6XWSueOxF2VD41COZK.html.

Natural Gas.[23] However the administration in either case does not seem to have any set plan in incentivising the switch to cleaner fuels for the industries.

A model for such a switch is being put into action by the Telangana government, with polluting industries being made to move to the outskirts of Hyderabad in a phased manner to be completed by December 2017, with also a possibility of placing industries engaged in similar activities in clusters, so as to more effectively implement pollution control methods. The Administration also plans to incentivise the move for the industrialists by offering tax rebates, easy land conversion and even residential quarters near the clusters for the employees.[24] If the Administrations in NCR too need to take similar measures to incentivise the move for the industries, barring which the effective implementation of such a policy is highly unlikely.

Leapfrogging Emission Standards

Another important measure that had been suggested by the Centre for Science and Environment's (CSE) Delhi Clean Air Action Plan[25] in 2014 was to fast track the switch from Bharat Stage IV to Bharat Stage VI emission standards as soon as possible. At the time the Union Ministry of Petroleum and Natural Gas' Committee on Auto Fuel Policy had given their roadmap for transition of emission standards as –

- Bharat Stage IV (countrywide) in 2017;
- Bharat Stage V (countrywide) in 2020;
- Bharat Stage VI (countrywide) in 2024

In 2014, CSE had stated that to cope with the rising number of vehicles and pollution levels in the country, India needs to adopt a more fast track transition in line with the timeline being followed in Europe, which would entail –

23 *Pollution alert: Noida industries told to switch to natural gas*, Hindustan Times, 5th January 2016, available at: http://www.hindustantimes.com/noida/noida-industries-asked-to-switch-to-natural-gas-by-march-31-or-face-action/story-qIMYg7ZvgJWld8JpjDrigL.html.

24 *1,068 polluting industries to be shifted to outskirts by December 2017*, The Times of India, 17th July 2016, available at: http://timesofindia.indiatimes.com/city/hyderabad/1068-polluting-industries-to-be-shifted-to-outskirts-by-December-2017/articleshow/53246799.cms.

25 *Delhi Clean Air Action Plan*, Centre for Science and Environment, 2014, available at: http://www.cseindia.org/userfiles/DelhiCleanAirActionPlan.pdf.

- Bharat Stage IV (countrywide) by 2015;
- Bharat Stage V (countrywide) by 2017;
- Bharat Stage VI (countrywide) by 2020;

However given the alarming state of air quality in India's cities, especially NCR Delhi, the Central Government has signalled its intent to leapfrog BS - V entirely and switch directly to BS - VI norms by 2020.[26] This seems like a measure that is desperately needed in Indian cities, the reaction from automobile manufacturers has been mixed, with some manufacturers such as Toyota-Kirloskar and Mercedes-Benz welcoming the move[27], whereas others have expressed scepticism over the ability of the industry to skip BS - V entirely in such a short period of time, given the complexity of the process and the huge amounts of investment required.[28] Even the Petroleum industry has expressed its reluctance, due to the huge amounts of investment required in such a short period.[29] Therefore though the move is a bold one, and possibly a very necessary one, the Central Government may be required to subsidise the move for the stakeholders involved so that the transition will not be overly burdensome on the consumer and the automobile industry.

Limiting Car Registrations & Controlling Dieselization

A few years ago, the city of Beijing had an infamous reputation across the world for extremely high levels of air pollution, and the city administration quickly took notice and implemented a slew of measures to curb the problem. They first implemented a road space rationing system where cars are limited only one day every week, during which commuters rely on either car-pools or take the subway. Under these limits, which rotates numbers every 13 weeks, tail plate numbers ending 4 and 9 are banned

26 *India To Skip Bharat Stage-V, Stricter Car Emission Norms Advanced To 2020*, NDTV, 7th January 2016, availableat: http://www.ndtv.com/india-news/india-to-skip-bharat-stage-v-stricter-car-emission-norms-advanced-to-2020-1262957;
India Bharat Stage VI Emission Standards, International Council on Clean Transportation, April 2016, available at: http://www.theicct.org/sites/default/files/publications/India%20BS%20VI%20Policy%20Update%20vF.pdf.

27 *Ibid.*

28 *BS III, BS IV... BS VI? Here's why India's auto emission norms are, well, BS*, First Post Business, 2nd June 2015, available at: http://www.firstpost.com/business/bs-iii-bs-iv-bs-vi-heres-why-indias-auto-emission-norms-are-well-bs-2274398.html.

29 *Ibid.*

on Mondays, 5 and 0 on Tuesdays, 1 and 6 on Wednesdays, 2 and 7 on Thursdays, and 3 and 8 on Fridays, with no limits on the weekend.[30] Earlier in the year, Delhi experimented with an alternate day, odd-even license plate rotation rule[31] as an emergency measure, but such a move was never meant to be a permanent solution.[32] The city of Paris too implemented a similar rule as an emergency measure, along with making public transport free to encourage citizens to use it.[33]

Then a limit on the total number of car registrations each year was placed. When the rule was initiated in 2011, the limit for the year was 240,000.[34] The registrations are handed out to the members based on an online lottery held each month. In 2016, the limit was cut down to 90,000 and in the month of June 2016, out of 2.7 million applicants, only about 3720 registrations were handed out, a ratio of around 1/725.[35] In stark contrast, Delhi registered 5,74,602 vehicles in 2014, which amounts to about 1,600 each day[36], and barring the dip in sales due to the diesel ban discussed in this article, the number of registrations are only on the rise.

Perhaps, most importantly, Beijing also put in place a sophisticated system of enforcement that does not rely on the traffic police. A network of surveillance cameras monitor traffic and flags violators, who are immediately, sent a 200 Yuan fine to their registered accounts with the Beijing Traffic Management Bureau. Moreover, if a

30 Ananth Krishnan, *Car limits: Why Delhi is no Beijing*, Daily-O, 5th December 2015, available at: http://www.dailyo.in/politics/delhi-pollution-arvind-kejriwal-aap-odd-even-formula-beijing-car-ban-china/story/1/7778.html.

31 *Delhi's odd-even scheme prevented increase in pollution: CSE*, Live Mint, 6th May 2016, available at: http://www.livemint.com/Politics/Delhis-oddeven-scheme-prevented-increase-in-pollution-CSE.html.

32 *Odd-even can't be implemented permanently, clarifies Kejriwal*, The Hindustan Times, 1st Jan 2016, available at:http://www.hindustantimes.com/delhi/live-new-year-off-to-odd-start-as-delhi-tries-out-its-odd-even-rule/story-N.html.

33 *Paris curbs car use as air pollution chokes city*, CNN, 8th December 2016, available at: http://edition.cnn.com/2016/12/08/europe/paris-air-pollution-free-metro-rides/

34 *Beijing launches 'car lottery' to help ease gridlock*, The Telegraph, 3rd Jan 2011, available at: http://www.telegraph.co.uk/news/worldnews/asia/china/8236891/Beijing-launches-car-lottery-to-help-ease-gridlock.html.

35 *Want to Drive in Beijing? Good Luck in the License Plate Lottery*, The New York Times, 28th July 2016, available at: http://www.nytimes.com/2016/07/29/world/asia/china-beijing-traffic-pollution.html?_r=0.

36 *Year wise Vehicle Registered in Delhi*, Delhi Traffic Police, available at: https://delhitrafficpolice.nic.in/about-us/statistics/.

camera spots a violator even several times on the same day, a fine is applied for every sighting. After a certain number of violations, drivers will have their licence suspended and will have to retake a driving test after a six-month period. The system is entirely automated; minimising room for either corruption or evasion, and the fines are high enough to ensure the rules are followed.[37] Similar measure limiting the number of car registrations with an effective enforcement system are desperately needed in NCR Delhi and several other congested cities in India and the Administration needs to muster the courage to take a much needed, but what will sure be unpopular, move to ensure long term air quality in India's cities.

Another important aspect that needs to be looked at by the Administration is that if the increasing dieselization of vehicles in India. It is ominous that at the current rate, India will soon overtake Germany as the world leader in diesel car sales.[38] After reaching a peak of 58% of the share of total vehicles in 2012-13, diesel vehicles stood at 48% of all vehicles in 2014-15, and dropped 44% in 2015-16 following the abovementioned ban on 2000cc diesel vehicles.[39] However following the lifting of the ban in August, 2016 and the negligible deterrent effect of the current environmental cess[40], the percentage of diesel vehicles is likely to rise sharply again. Activists are of the view that the important thing that needs to be addressed is the large disparity between the prices of petrol and diesel, and that this needs to be addressed.[41]At the peak in diesel sales in 2012-13, the gap between petrol and diesel prices stood at ₹ 30. It currently (December, 2016) stands at ₹ 12.37. The amicus curiae on the diesel bancase, Mr Harish Salve is of the view that the cess on diesel cars needs to be in the range of 20-30% to compensate for the difference in fuel taxes between petrol and diesel.[42]

The government needs to either pursue such a move or reduce subsidies on diesel to remove the disparity in price between the two fuels, to incentivise the consumer into using the cleaner fuel.

37 *Supra* note 30.

38 *India to top world in diesel car sales*, The Hindustan Times, 24th June 2015, available at: http://www.hindustantimes.com/business/india-to-top-world-in-diesel-car-sales/story-html.

39 *Supra* note 3.

40 *Supra* note 10.

41 *Ibid.*

42 *Ibid.*

Improve Public Transport and Last Mile Connectivity

There is a dire need for the scaling up of public transport in India, and improving last mile connectivity. In the Order[43] dated 28th July, 1998, the Supreme Court as mentioned earlier, directed the Delhi Administration to augment the total number of buses to 10,000. The High Court on Delhi too reminded the DTC of this directive and stated that given the increase in population, 12,000 buses would be required in Delhi.[44] This directive still hasn't been complied with by the DTC, with reports suggesting that they are nowhere near the mark.[45] When Beijing put in place its road space rationing system and limited the number of car registrations, the administration made huge investments into rapidly scaling up its public transport system, which transferred a large number of commuters onto public transport and eased congestion on the roads. The total length of Beijing's metro is now nearing 600km, nearly that of the Delhi Metro.[46] Though studies have shown that the Delhi Metro has indeed played a substantial role in reducing pollution in Delhi[47], connectivity definitely needs to improve at the rate Beijing's metro grew to incentivise commuters to switch to the Metro. Diversion of DTC bus routes to supplement the Metro and improving the Metro Feeder Bus Service will be crucial to increasing the efficiency, decreasing commute times and by extension, increasing the number of commuters using this service.[48]

Controlling Widespread Crop Burning

Another vastly reducible source of air pollution is crop burning that is practised in fields in the states of Punjab, Haryana and Uttar Pradesh, which is done to ready the fields to plant the winter wheat crop. The National Green Tribunal has already

43 *Supra* note 3.

44 Court on its Own Motion v. State of NCT of Delhi &Ors., 2011 SCC Online Del 1108.

45 Press Trust of India, *DTC phased out nearly 900 buses but added none in over 2 years*, Business Standard, 30th September 2014, available at: http://www.business-standard.com/article/pti-stories/dtc-phased-out-nearly-900-buses-but-added-none-in-over-2-years-_1.html.

46 *Supra* note 30.

47 Deepti Goel & Sonam Gupta, *Delhi Metro And Air Pollution*, Working Paper No. 229, April 2015, Centre for Development Economics, Delhi School of Economics.

48 Mukti Advani and Geetam Tiwari, *Evaluation Of Public Transport Systems: Case Study Of Delhi Metro*, Proceeding in START-2005 Conference, IIT Kharagpur.

addressed this issue and ordered the states to impose fines on farmers for each incidence of crop burning.[49]

It also directed the States to provide the machinery for crop removal for free to small scale farmers and at subsidised rates for larger farmers to incentivise farmers against crop burning. However NASA satellite images a year after this directive showed no abatement in smoke generated due to crop burning.[50] Therefore steps in the right direction have been taken towards controlling widespread crop burning, however better enforcement on the part of the State Governments would be required to effectively reduce it.

CONCLUSION

The primary difference between the recent measures directed by the Supreme Court to curb the alarming levels of air pollution in Delhi as opposed to the first wave of judicial activism that was exercised in this regard by it in the 1990s, is that the measures taken back then were all long terms measures meant to have a lasting impact on the air quality in Delhi, and indeed they did. Currently however the measures that have been taken such as the ban on diesel vehicles discussed in this paper and other measures such as the ban on construction can only be used as interim or emergency measures for period of severe pollution, such as the ones seen in the preceding two winters. However what Delhi needs desperately at the moment is a series of long term measures of the nature of the ones taken in the late 1990s, that seek to address the root of the problem, rather than mere temporary band-aid measures. Therefore what Delhi needs desperately at the moment is a combination of the long term measures that have been suggested above and the short term emergency measures that are being employed by the current administration to be utilised in periods where there is a severe drop in air quality in the capital. But what can't be stressed enough is that merely just the measures that are currently in place are definitely not sufficient to

49 *Take action against farmers for crop residue burning: NGT*, The Hindu, 10th December 2015, available at: http://www.thehindu.com/news/national/take-action-against-farmers-for-crop-residue-burning-ngt/article7971366.ece.

50 Geeta Anand, *Farmers' Unchecked Crop Burning Fuels India's Air Pollution*, The New York Times, 2nd November 2016, available at: http://www.nytimes.com/2016/11/03/world/asia/farmers-unchecked-crop-burning-fuels-indias-air-pollution.html?

tackle the environmental crisis that the capital is in at the moment, and the administration needs to learn from the action taken by Beijing and implement stern far seeing measures immediately, when there is still a slight chance of an otherwise unlikely recovery.

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4

TOXIC TORT LITIGANTS AND ACCESS TO JUSTICE IN INDIA – CHALLENGES FACED BY THE CLAIMANTS

Prof. (Dr.) V.R.Dinkar

- *Introduction*
- *Bar of Claim Due to the Rules of Limitation as a Constrain*
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- *Influence of the Developments in Science and Technology*
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4

TOXIC TORT LITIGANTS AND ACCESS TO JUSTICE IN INDIA – CHALLENGES FACED BY THE CLAIMANTS

*Prof. (Dr.) V.R. Dinkar**

INTRODUCTION

'Access to justice' the sacrosanct adage prevailing in the justice system is still a fallacy in the mind of some poor and downtrodden inhabitants in India. The toxic tort[1] litigations are not novel in India since it can be traced back to the dark days of Bhopal[2], a toxic catastrophe witnessed by the whole world. Environmental justice, categorically insists the legal system to scrutinize the claims for personal injury arising within its domain, especially the claims of poor and downtrodden class of people. In India, it is high time to change the legislative as well as judicial policy while considering the claims based on serious toxic tort litigations. Time and again the Indian legal system is being tested by the general public regarding the fixation of the corporate liability and the award of compensation. The toxic tort law, which was originated in the United States as a remedy to the forcible exposure of human body to the hazardous toxic substances on account of negligence and in most of the cases it was

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1 'Toxic tort' means a civil injury as a result of the application of any of the toxic or poisonous substance in human body which is actionable in law. For more details see Kenneth R. Foster & Peter W. Huber, Judging Science (1999); Kenneth Foster et al., Phantom Risk: Scientific Inference and the Law (1993); Jonathan Harr, A Civil Action (1995); Peter W. Huber, Galileo's Revenge (1991); Sheila Jasanoff, Science at the Bar (1995).

2 See generally, http://www.bhopal.net/what-happened-in-bhopal/.

decided on the basis of strict liability principle (in India the absolute liability).[3] Unlike the ordinary tort cases, toxic tort claimants frequently encounter rigorous legal and scientific obstacles in recovering compensation for the injuries resulting from the exposure. The claimants would be more burdensome if the defendants are the corporate giants coming under the state. Furthermore, the toxic tort cases are very complex in nature to prove since it involves various scientifically undecided issues which are absent in the conventional common law tort cases like accident or product liability.[4]

The major task of the claimant in hazardous toxic exposure cases is to prove the immediate cause of his ailment. For that he has to establish the nexus of his disease with the particular toxic substance through scientific methods. The thornier situation is to show that a particular chemical exposure is the actual cause for the disease after the lapse of long time. Some chemical substances do not act rapidly on human body but after a long duration. For e.g., carcinogenic[5] substances generating mutations[6] in DNA.

This article considers three important obstacles that would come across the path of the toxic tort claimants while instituting the suit for damages in the Indian legal system. The first part of the article seeks to examine the rules in the law of limitation as a barrier in barring the claim of the plaintiff. This particular unsettled legal issue is

3 In India, absolute liability was laid down for the first time by the Supreme Court in *M.C. Mehta* v. *UOI*, 1987 AIR 1086; 1987 SCR (1) 819 (holding that an enterprise which is engaged in a hazardous or inherently dangerous industry which poses a potential threat to the health and safety of the persons working in the factory and residing in the surrounding areas owes an absolute and nondelegable duty to the community to ensure that no harm results to anyone on account of hazardous or inherently dangerous nature of the activity which it has undertaken. The enterprise must be held to be under an obligation to provide that the hazardous or inherently dangerous activity in which it is engaged must be conducted with the highest standards of safety and if any harm results on account of such activity, the enterprise must be absolutely liable to compensate for such harm and it should be no answer to the enterprise to say that it had taken all reasonable care and that the harm occurred without any negligence on its part.). See also *Jay Laxmi Salt Words (P) Ltd* v. *State Of Gujarat*, 8 AIR 1965 SC 1663; (1965) 3 SCR 293.

4 It is also complex because of multitude of defendants and plaintiffs. See Zygmunt J.B. Plater et al., *Environmental Law and Policy: Nature, Law, and Society* 172 (1992).

5 Carcinogenic means a substance or agent that causes cancer.

6 Mutation means the changing of the structure of a gene, resulting in a variant form which may be transmitted to subsequent generations, caused by the alteration of single base units in DNA, or the deletion, insertion, or rearrangement of larger sections of genes or chromosomes.

addressed based on the critical analysis of the rules in the Indian Limitation Act, 1963 in the light of its forerunner legislation, the Limitation Act of 1908. A comparative jurisdictional analysis has also made out to establish the crack in our legislation especially in the age of science and technology. Part two discusses the task of establishing the causation of the harm with the help of scientific evidence. Thirdly, the article analyses intensively the rationale of charging heavy court fee on litigants in cases in which the tortfeasor is the state since the court fee is the revenue generation of the state and it would be like taking of undue advantage from the litigants and putting them under heavy financial burden. Here also a comparative jurisdictional analysis has been made out to establish the barrier.

BAR OF CLAIM DUE TO THE RULES OF LIMITATION AS A CONSTRAIN

One of the legal barriers in India is the bar of claim due to the law of limitation. In India, in fact, the Limitation Act, 1963 is silent regarding the maximum time for filing of suits for injuries sustained as a result of toxic torts since it is coming under negligence. However, Article 113 which is residuary in nature can be invoked for any suits for which any particular period is not provided. If that is the situation, the maximum period is three years from the day on which the plaintiff accrues the right to sue. The next query is about the ascertainment of the day on which the plaintiff will get the right to sue; whether it accrues from the date of negligence or from the date of injury. In the United States also there arose serious controversy on the recovery of damages for toxic tort injuries based on the literal interpretation of the Statute of limitation.[7] In order to avoid hardship to the poor litigants due to the technicalities of legal rules, courts in the U.S. gave a progressive interpretation to the strict rules of the law of limitation and invented a rule known as 'discovery'. This rule allows the claimant to institute the suit even after the expiry of the maximum period of limitation as provided in ordinary tort cases. The rationale of the rule is that the cause of action will accrue only when the real injury is discovered by the plaintiff and its probable

7 See generally Michael D. Green "The Paradox of Statutes of Limitations in Toxic Substances Litigation", 76 Cal. L. Rev. 965 (1988); Matthew G. Dore, "Statutes of Limitation and Corporate Fiduciary Claims: A Search for Middle Ground on the Rules/Standards Continuum", 63 Brook. L. Rev. 695 (1997); Elad Peled, "Rethinking the Continuing Violation Doctrine: The Application of Statutes of Limitations to Continuing Tort Claims", 41 Ohio N.U.L. Rev. 343 (2015).

cause to a particular toxic exposure came to his knowledge.[8] A comparable progressive interpretation has given by our Supreme Court in the landmark case *Jay Laxmi Salt Works (P) Ltd.* v. *State of Gujarat*,[9] in which Shai, J., observed: "... where there is a single wrong the time may start running immediately.... But there may be others where even though injury may have been caused but the cause of action may not arise unless something more happens. For instance if one accumulates something hazardous on its own premises and it leaks then the cause of action will arise not by accumulation or even by mere leakage but cause of damage and injury." Though this observation has reverberation in deciding the period of limitation in toxic tort litigations, it is a not a pristine rule in the present scenario since it was formulated while interpreting the old Limitation Act of 1908, the forerunner of the Limitation Act, 1963. The law was abrogated and the present law came into force with certain new provisions. In the present Act, section 22 explicitly deals with the period of limitation in the continuing tort cases. The section says that "... in the case of a continuing tort, a fresh period of limitation begins to run at every moment of the time during which ... the tort ... continues." However, this rule cannot be considered as appropriate one since its application is limited to the continuing torts and not injury. If the injury is due to onetime exposure and noticed after the lapse of a long duration, justice demands to apply the rule like 'discovery'. It is high time to amend the law and to insert the remarkable rule in the United States so as to ensure maximum fairness in deciding toxic tort litigations.

CONTINUING TORT DISTINGUISHED FROM INJURY

The rule in section 22 of the Limitation Act has only limited application in toxic tort claims since it covers only continuing or repeating tort from the side of the same tortfeasor. For e.g. defendant trespassing into the property of the plaintiff continuously neglecting the words of the plaintiff. A fresh time of limitation will start to run every time the tort is repeated. Here, the tort as well as the injury is repeating and court can

8 Generally, a cause of action accrues and the statute of limitation begins to run at the time the wrongful act was committed; however, the discovery rule is an exception to this general rule and provides that a cause of action does not arise until the plaintiff discovers, or by the exercise of reasonable diligence should have discovered, that he or she was injured by the wrongful conduct of the defendant. See *Adcor Indus., Inc.* v. *Bevcorp, LLC*, 411 F. Supp. 2d 778 (N.D. Ohio 2005), aff'd, 252 Fed. Appx. 55 (6th Cir. 2007); *Norgard v. Brush Wellman, Inc.*, 95 Ohio St. 3d 165, 2002-Ohio-2007, 766 N.E.2d 977 (2002).

9 (1994) 4 SCC 1).

consider the commission of the tort for computing the period of limitation.[10] Thus, Article 87 of the Schedule appended to the Limitation Act, 1963 says that the time will start to run for compensation for trespass upon immovable property is two years from the date of the trespass. Section 22 further says that if the same tort is continuing, a fresh period of limitation begins to run at every moment of its continuance. In fact, section 22 can be applied even in toxic tort cases if the toxic substance is discharging by the defendant continuously and the plaintiff had been exposed to it continuously and if he is able to prove injury as a result of the exposure. On the other hand, if the discharge of the toxic substance is a onetime act of the defendant and the injury was discovered by the plaintiff after the lapse of a long period, courts should consider the date of discovery of the injury for computing the time.

INFLUENCE OF THE DEVELOPMENTS IN SCIENCE AND TECHNOLOGY

There are situations in which a person may expose to a particular toxic substance continuously emitted by the defendant and presence of the substance in his body will come out as a disease after a lapse of long duration. In such situation it would result

10 In the United States this is known as the continuing tort doctrine or continuing violation doctrine which include: continuous discrimination in the workplace and in other settings, actionable under civil rights laws; continuous or repetitive publication, particularly online, which harms protected rights such as the right to reputation, the right to privacy, and copyright; continuous violation of antitrust laws; nuisance and environmental torts caused, for instance, by the daily production of smoke by a factory, by a continuous leak of gasoline or other substances from a broken pipeline, or by the continuous presence of polluting waste in land or water; continuous trespass; continuous infliction of emotional distress; continuous alienation of affection; and continuous professional malpractice. See Elad Peled, "Rethinking the Continuing Violation Doctrine: The Application of Statutes of Limitations to Continuing Tort Claims" 41 Ohio N.U.L. Rev. 343 (2015). See also Douglas Laycock, "Continuing Violations, Disparate Impact in Compensation, and Other Title VII Issues", 49 LAW & CONTEMP. PROBS. 53 (1986); Thelma A. Crivens, "The Continuing Violation Theory and Systemic Discrimination: In Search of a Judicial Standard for Timely Filing", 41 VAND. L. REV. 1171 (1988); Albert C. Lin, "Application of the Continuing Violations Doctrine to Environmental Law", 23 ECOLOGY L.Q. 723 (1994); James R. MacAyeal, "The Discovery Rule and the Continuing Violation Doctrine as Exceptions to the Statute of Limitations for Civil Environmental Penalty Claims", 15 VA. ENVTL. L.J. 589 (1996); Lisa S. Tsai, Note, "Continuing Confusion: The Application of the Continuing Violation Doctrine to Sexual Harassment Law", 79 TEX. L. REV. 531 (2000); Michael Lee Wright, "Civil Rights-Time Limitations for Civil Rights Claims-Continuing Violation Doctrine: Sharpe v. Cureton, 319 F.3d 259 (6th Cir. 2003)", 71 TENN. L. Rev. 383 (2004); Allison Cimpl-Wiemer, "Comment, Ledbetter v. Goodyear: Letting the Air Out of the Continuing Violations Doctrine?", 92 MARQ. L. REV. 355 (2008); Simon Turner Bailey, Note, "Doctor My Doctrine: Medical Malpractice and the Irrepressible Continuing Tort", 62 ALA. L. REV. 439 (2011).

in serious miscarriage of justice if we apply the date of commission of tort i.e. the exposure or even the date of the presence of the toxic substance in his body since an exposure or presence of the toxic substance shall not give rise to a cause of action. The cause of action will arise only if it injures the plaintiff.

Nowadays, due to the advancement in science and technology, it is possible to detect a particular medical condition present in an exposed person after the lapse of a long duration. This happens due to the impact of the toxic substance at the DNA level. The causation should be proved to accrue the cause of action and damages. And in some other cases, it could be detected at an earlier stage and the plaintiff can prove the increased risk of cancer or some similar diseases. In such situations, the limitation time should run from the date the plaintiff knew or discovered that he is suffering an injury due to the exposure.

LIMITATION IN THE CASE OF INDIRECT EXPOSURE

Occasionally, the exposure to a particular chemical substance would not create any medical condition on a person until he dies. But, the same substance may diffuse to the DNA of his progeny and make mutations in their DNA. As a result of the mutation, the siblings will get the disease. This is an indirect exposure and the limitation time should not run until the progeny attains maturity and discovers the injury. If the medical condition of the child is discovered before he attains majority, limitation time should start running from the date of the discovery only if the parents have *locus standi* to sue.

INTERPRETATION OF THE APPLICATION OF THE LAW OF LIMITATION IN THE LIGHT OF THE NATIONAL GREEN TRIBUNAL ACT, 2010

The National Green Tribunal Act, 2010 (hereinafter NGT Act) is a well consolidated Central legislation that exclusively deals with the adjudication of cases relating to the relief and damages to persons connected with environmental hazards. Toxic tort litigations will come under the Act if it has any direct nexus with the citizen's legal right to environment and which would arise out of the implementation of the enactments provided in Schedule I of the Act.[11] The language of section 33 of the

11 The enactments are: (1) The Water (Prevention and Control of Pollution) Act, 1974; (2) The Water (Prevention and Control of Pollution) Cess Act, 1977; (3) The Forest Conservation Act, 1980; (4) The Air (Prevention and Control of Pollution) Act, 1981; (5) The Environment (Protection) Act, 1986; (6) The Public Liability Insurance Act, 1991 and (7) The Biological Diversity Act, 2002.

Act makes clear that the provisions of the Act prevails so far as any inconsistency that would occur with any of the provisions of any other law time being in force. Section 14 and 15 says about the period of limitation with regard to the adjudication of disputes and application for grant of any compensation, relief or restitution of property. For adjudication of any type of disputes coming under the enactments specified in Schedule I, the maximum period of time is six months from the date on which the cause of action for such dispute first arose.[12] A further period of sixty days is also provided if the applicant is able to satisfy the Tribunal that he was prevented by sufficient cause from filing it.[13] Section 15 gives more time to the applicant who wants to claim compensation or restitution of property. The maximum time frame is 5 years with an additional 60 days for those who satisfy the Tribunal that he was prevented due to sufficient cause from applying it.[14]

The recurring cause of action was thoroughly explained by the Principal Bench of the NGT in an interesting case *Doaba Paryavaran Samiti* v. *UOI*.[15] In this case one of the major issues was whether the case was affected by the limitation as mentioned in section 14 of the NGT Act. The narrow interpretation of section 14 gives hardship to the applicant with regard to the maintainability of the case. The factual situation as narrated by the applicant shows that the cause of action was first arose around nine years back when the respondents gave permission to fly the helicopter to Kedarnath temple over Kedarnath Wildlife Sanctuary at Uttarakhand and the impugned act was still carrying out by the respondents. The applicant alleged that the said flying was endangering the ecosystem of the Kedarnath Wildlife Sanctuary. Court had widely interpreted section 14 and observed that every violation of law or every act which constitutes and completes cause of action in itself would be a recurring cause of action and would bring right to action independently. The court has created a judicial precedent which should read along with section 14 of the NGT Act as an explanation to it stating that "a recurrent cause of action is an extension to the expression 'cause of action first arose'".[16]

In *Forward Foundation, A Charitable Trust* v. *State of Karnataka*,[17] the Tribunal has distinguished the expressions "recurring cause of action", "continuing cause of action"

12 S. 14(3) of the National Green Tribunal Act, 2010.
13 *Id.*
14 S. 15(3) of the National Green Tribunal Act, 2010.
15 Original Appln. No. 327/2015.
16 *Id*. at Para 11.
17 2015 ALL (1) NGT Reporter (2) (Delhi) 81.

and "successive cause of action". Citing *Bal Krishna Savalram Pujari* v. *Sh. Dayaneshwar Maharaj Sansthan*,[18] the court explained that the continuing wrong is the foundation of the continuing cause of action as we have seen in the *Doaba* case.

As far as the toxic tort cases are concerned the confusion in fixing the cause of action lies in the observation made by the NGT in *Forward Foundation* case as follows:

> The settled position of law is that in law of limitation, it is only the injury alone that is relevant and not the consequences of the injury. If the wrongful act causes the injury which is complete, there is no continuing wrong even though the damage resulting from the act may continue. In other words distinction must be made between continuance of legal injury and the continuance of its injurious effects. Where a wrongful act produces a state of affairs, every moment continuance of which is a new tort, a fresh cause of action for continuance lies. Wherever a suit is based on multiple cause of action, period of limitation will began to run from the date when the right to sue first accrues and successive violation of the right may not give rise to a fresh cause of action.

The observation made above cannot be accurately applied in toxic tort cases without looking the factual situation since there is possibility of serious miscarriage of justice. As we had discussed earlier, in toxic tort cases, the legal injury and cause of action may accrue by a claimant in a different way. It is well explainable with the help of two incidents. The first one is the Bhopal gas leak case. In Bhopal case the foundation of the claims were based on the one time toxic exposure. The injury, cause of action and the right to sue of the dead and disabled will immediately commence from the date of incidence. If we consider the legal injury as a result of the rapid exposure, there may not be any continuance of legal injury instead continuous of its injurious effects. As far as Bhopal case is concerned, the first part of the observation may fit with the factual situation but not in all claims especially the claims coming later. The second incident is the endosulfan exposure in Kerala and Karnataka. The exposure was not a single incident though started on a particular day when the endosulfan got aerially sprayed. It was sprayed continuously for several years and the foundation of the cause of action i.e. legal injury was suppressed in the body of the victims for a prolonged period. The wrongful act was continuing even after the legal injury came into light can be put under the second part of the observation. The claimants can be

18 AIR 1959 SC 798.

given relief on the basis of continuously exposing to the toxic substance and it is not possible to separate a particular day in which he was really injured. In such situation, the entire days or times of exposure should be reckoned for fixing the cause of action. But if the wrongful act has totally stopped on a particular date after continuing it for several years, the limitation period should immediately start to run from the day immediately commencing after the last day of the wrongful act.

Similarly, first part of the observation may not be suitable for situations in which there is confusion in finding out real injury and injurious effect. For example, there are situations in which continuous exposure to a toxic substance may not deliver any disease to a person but may come out after a long duration. In such cases, if we take the period of exposure as legal injury, it would give injustice to the claimant since he may not be able to detect it on right time. Here, the fact finder should consider the date of the first discovery of disease as the cause of action for the dispute first arose instead of the period of exposure. Nowadays, due to the development in science and technology it is possible to discover any type of medical condition of a person through genetic tests like genetic screening. If that is the situation, the limitation period should start immediately from the date of discovery. These things should come under the immediate attention of the legislature.

The other major controversy is revolving around the distinction made by the *Forward* court i.e. the law is concerned only about the injury and not the consequences relating to the injury needs more clarification. It is not clear what court meant by this distinction. For proper understanding it would be better to distinguish cause of action into immediate and remote. The immediate cause of actions is always actionable since it has close nexus with the event. On the other hand, remote cause of actions is not actionable per law. If a particular effect has direct nexus with the act in question, it should be actionable *per se* irrespective of the fact that it is the consequences. Some times consequences might also have the same effect as the injury resulted from an act. It cannot be side lined or totally avoid saying that it is not the direct injury of the act. For example, if a pregnant lay was exposed directly to a particular contaminant in air and water and later detected for a medical condition like cancer; what would be the cause of action for her dispute and her child's if that child develops any medical condition after attaining the age of 20. The more confusing situation may be the fixing of the cause of action of a person who has developed with a medical condition not directly but as a result of DNA transferred from his parents. The aforesaid situations are possible in most of the chemical exposure cases and determinable on

the basis of scientific evidence. If the relative risk of an exposure is higher, the greater would be the likelihood that the relationship is causal. Though the act and effect has remote level of nexus, its association with the act would be very high as to make it actionable. In such situations, it is advisable that the cause of action may be treated as subsequent one and the period of limitation should commence from the date of discovery of the medical condition irrespective of its consequences.

U.S. JURISDICTIONAL ANALYSIS

In the United States any claim based on environmental violations will be barred by an applicable statute of limitation after the lapse of a prescribed duration from the inception of the accrual of claim. However, the statute of limitation shall not be an absolute bar for genuine claims with proper justifications propounded by the courts like (1) discovery rule and (2) continuing violations doctrine. The discovery rule governs the period of limitation and validates the claim if the plaintiff discovers the injury or essential facts underlying his claim lately. The effect of the rule is that it postpones the period of limitation until the injury or fact discovers in exercise of reasonable diligence. On the other hand, the continuous violation doctrine will extend the period of limitation where the wrongful act is continuous. The test under the doctrine was devised by the U.S. Supreme Court in *United Air Lines, Inc.* v. *Evans.*[19] The court observed that "a tort is continuing only where the unlawful conduct itself as opposed to merely its ill-effects is continuing". In some cases there will be interplay of both discovery rule and continuous violation rule. Even if an act has been continuing from the side of the tortfeasor, the limitation period will wait till the act comes to the knowledge of the claimant. Here, the act may come to end after the completion of the last continuing day or time but the period of limitation will commence only when the same act has been discovered by the claimant. As rightly explained by Elad Peled,[20] the continuing violation doctrine has two different versions: Under the first version all unlawful behaviours of the tortfeasor shall be regarded as a single unitary violation and the cause of action will commence only after the cessation of the entire behaviour in the same transaction. Under the second version, each act will be considered as independent and the plaintiff will get separate cause of action after the completion of the each act.

19 431 U.S. 553, 558 (1977).

20 Elad Peled, Rethinking the Continuing Violation Doctrine: The Application of Statutes of Limitations to Continuing Tort Claims, 41 Ohio N.U.L. Rev. 343, 352 – 53.

WRIT JURISDICTION AND THE LAW OF LIMITATION

It is an accepted fact that the real development of environmental jurisprudence has taken place in India through the exercise of original jurisdiction of the Supreme Court of India under Article 32 of the Constitution. The Supreme Court had widely interpreted Article 21 and includes right to clean environment as well. Gradually, the Supreme Court had liberalised its *locus standi* principle so as to accommodate the Public Interest Litigations based on environmental issues. Similarly, the Indian legal history shows that the writ jurisdiction under Article 226 also played a major role in developing the environmental jurisprudence.

Though latches and delay as applicable in ordinary cases arising under the statutes are not as such applicable for the cases filed under Article 226, the Supreme Court and High Courts are of the view that inordinate delay and latches should definitely affect the standing of the writ petitioners. There is no rule of law but only a rule of practice based on sound and proper exercise of discretion that the court will refuse to entertain any petition if there is unexplainable and inordinate delay.[21] The claims based on environmental issues are not an exception to this rule. Thus in *D.D.A* v. *Rajendra Singh*,[22] the Supreme Court has held that "delay rules apply to PILs also and if there is no proper explanation for the delay, PILs are liable to be summarily dismissed on account of delay."

In 5 Whether It Is to Be Circulated To ... v. *"(A) to direct on 13 January, 2014*, Gujarat High Court has allowed the belated petition considering the importance of the issue based on the environment. The court has relied with authority the observation made by the Supreme Court in *Tukaram Kana Joshi v. M.I.D.C.*[23]:

The question of condonation of delay is one of the discretion and has to be decided on the basis of the facts of the case at hand, as the same vary from case to case. It will depend upon what the breach of fundamental right and the remedy claimed are and when and how the delay arose. It is not that there is any period of limitation for the Courts to exercise their powers under Article 226, nor is it that there can never be a case where the Courts cannot interfere in a matter, after the passage of a certain length of time. There may be a case where the demand for justice is so compelling, that the High Court would be inclined to interfere in spite of delay. Ultimately, it

21 See *Ramchandra Shankar Deodhar* v. *The State of Maharashtra*, AIR 1974 SC 259.
22 Para 26, http://judis.nic.in/supremecourt/imgs1.aspx?filename=35170.
23 AIR 2013 SC 565.

would be a matter within the discretion of the Court and such discretion must be exercised fairly and justly so as to promote justice and not to defeat it.

In practice, it appears that the higher courts are courts of appeal having extra ordinary original jurisdiction to be exercised sparingly when fundamental rights are violated or if any alternative remedy is not guaranteed through the statutes. In India, the common practice from the side of bar and bench of fitting a statutory rights violation as the violation of a fundamental right and thereby overburdening the higher judiciary should not be encouraged. The best example is the above cited case in which court also considered the issue whether availability of alternative remedy by approaching the National Green Tribunal will affect the maintainability of the writ petition under Article 226. Negating the plea of alternative remedy court observed that "the petitioner are seeking enforcement of fundamental rights under Article 21 of the Constitution of India by seeking implementation of Environmental Laws on the allegations that there is gross violations...we reject the submissions canvassed on behalf of the respondents as regards the alternative remedy.

PROVING GENERAL AND SPECIFIC CAUSATION - A FINANCIAL BURDEN ON THE PLAINTIFF

In toxic tort litigations the plaintiff can succeed only if he can prove the general and specific causation.[24] In general causation he has to establish that a particular chemical substance in question is capable to make such injury as caused to him. In addition to that he has to prove the specific causation showing that his injury is due to the exposure to the chemical emitted by the defendant.[25] Thus, the entire claim of the plaintiff in

24 See generally, Daniel A. Farber, "Toxic Causation", 71 Minn. L. Rev. 1219; Shavell, "An Analysis of Causation and the Scope of Liability in the Law of Torts", 9 J. LEGAL STUD. 463 (1980); Robinson, "Multiple Causation in Tort Law: Reflections on the DES Cases", 68 VA. L. Rev. 713 (1982); Kaye, "The Limits of the Preponderance of the Evidence Standard: Justifiably Naked Statistical Evidence and Multiple Causation", 1982 AM. B. FOUND. RES. J. 487; Robinson, "Probabilistic Causation and Compensation for Tortious Risk", 14 J. LEGAL STUD. 779 (1985); Wright, "Causation in Tort Law", 73 CALIF. L. REV. 1735 (1985); Wright, Actual Causation vs. Probabilistic Linkage: The Bane of Economic Analysis, 14 J. LEGAL STUD. 435 (1985); Symposium: "A Cross-Disciplinary Look At Scientific Truth: What's the Law to Do?: Causation, Truth, and the Law", 73 Brook. L. Rev. 959 (2008).

25 For a distinction between general and specific causation see *Norris v. Baxter Healthcare Corp.*, 397 F.3d 878 (10th Cir. 2005); *In re Hanford Nuclear Reservation Litig.*, 292 F.3d 1124, 1129 (9th Cir. 2002) (general, or generic causation has been defined by courts to mean whether the substance at issue had the capacity to cause the harm alleged, while "individual causation" refers to whether a particular individual suffers from a particular ailment as a result of exposure to a substance); In *re Rezulin Prods. Liab. Litig.*, 369 F.Supp. 2d 398, 402 (S.D.N.Y. 2005). See also David A. Freedman and Philip B. Stark, "The Swine Flu Vaccine and Guillain-Barre Syndrome: A Case Study in Relative Risk and Specific Causation", 64 Law , &, Contemp. Probs. 49 (2001).

toxic tort litigation is revolving around the general and specific causation. While proving specific causation he has to establish that the level of the toxic substance he has exposed to is likely to cause the disease he contacted. He can prove it only with the help of epidemiological study conducted to establish the cause and effect of the disease in human population. Here the task is that he is not only proving the nexus in between the toxic substance he had exposed to and his disease but also eliminating the possibility of getting the disease through some other cause. As far as toxic tort causation is concerned epidemiological studies are utmost important to determine whether an agent is involved in developing a particular medical condition. The study is performed through clinical trials, randomized trial or even true experiment. Apart from these studies, in some cases scientists may conduct toxicology models based on *in vitro* studies. The epidemiological studies can establish the strength of the causal connection in between the exposed agent and the medical condition through attributable risk, odds ratio or relative risk. However, epidemiological studies cannot provide any evidence to prove specific causation that an agent was the real cause of the plaintiff's disease. For success, the plaintiff has to establish not only an agent is capable to produce a medical condition but also his disease is the product of that agent.

It is a heavy financial burden on the plaintiff to conduct epidemiological studies to prove the causation in law. If it is a mass toxic exposure case, the epidemiological research will be funded by some funding agents in India or abroad. On the other hand, if it is an individual exposure like employment exposure, the plaintiff alone should bear the financial burden unless it is taken by some NGO's or state run research institutions. Usually, after filing the case, the court will direct the plaintiff to bear the expense involved for the research.

Here it is germane to highlight the statutory duty of the legal services authority under the Legal Services Authorities Act, 1987. The legal services authority has a definite role to play especially in toxic tort cases. Section 12 of the Act clearly says that persons who are victims of mass disaster or industrial disaster are eligible for legal services. Section 13(1) further says that they are entitled only if they have established a prima facie case to prosecute. From the object of the Act itself it is clear that it is the primary duty of the actors under the authority "to provide free and competent legal services to the weaker sections of the society to ensure that opportunities for securing justice are not denied to any citizen by reason of economic or other disabilities." The term legal service is also properly defined in the definition clause as "rendering of any service in the conduct of any case or other legal proceeding

before any court or other authority or tribunal and giving of advice on any legal matter."

The plain reading of section 12 disappoints one due to the rigidness of its language excluding a male person from availing the services under the Act. The experience shows that such persons are restrained from filing suit due to heavy cost in conducting epidemiological research studies which would become the scientific evidence to prove their cause. Any full-fledged trial is more expensive regardless of whether the plaintiff is an indigent or not. Moreover, due to its complex nature, toxic tort litigations should be handled by specialized lawyers whose fee may be very high. The issues are more or less policy matters which needs urgent legislative consideration. Justice demands a liberalized approach from the side of state actors to include any person who is not able to file a suit due to his financial incapacity shall be given full support in the quest of justice from the court room.

Section 12 of the Legal Services Act shall be read in the light of Article 39A of the Constitution: "The State shall secure that the operation of the legal system promotes justice, on a basis of equal opportunity, and shall, in particular, provide free legal aid, by suitable legislation or schemes or in any other way, to ensure that opportunities for securing justice are not denied to any citizen by reason of economic or other disabilities." The language of the article is comprehensive enough to include legal aid to any person if he is not able to secure the justice due to economic disability. The financial incapacity should not be a constrain to any one in securing justice through legal course of action since it is *sine qua non* in a country ruled by law.

In *M.H. Hoscot* v. *State of Maharastra*[26] while interpreting article 39A, Krishna Iyer, J., observed: "Judicial justice, with procedural intricacies, legal submissions and critical examination of evidence, leans upon professional expertise, and a failure of equal justice under the law is on the cards where such supportive skill is absent for one side."[27] Thus, what article 39A provides is not only legal aid but also equal justice through equal opportunity.

In another landmark case *Hssainara Khatoon* v. *State of Bihar*,[28] the Supreme Court applied *Hoscot's* decision and observed that implementing legal aid to the needy was not only a mandate of equal justice implicit in Art 14 and right to life and personal

26 AIR 1978 SC 1548.
27 *Id.* at 1554.
28 AIR 1979 SC 1360.

liberty conferred by Art 21, but also the compulsion of the constitutional directive embodied in Art 39A.

The most significant thing to be considered while discussing state aid is the financial burden of the state for implementing it. This gains more importance in a developing country like India. At the same time a person's equal opportunity to access justice shall not be denied only due to his poverty. Here it is worthwhile to quote the wordings of Justice Brennan: "When only the rich can enjoy the law, as a doubtful luxury, when the poor, who need it most, cannot have it because its expense puts it beyond their reach, the threat to the continued existence of free democracy is not imaginary but very real, because democracy's very life depends upon making the machinery of justice so effective that every citizen shall believe in and benefit by its impartiality and fairness."[29]

In Hussainara Khatoons case Justice Bhagwati has rightly quoted the observation of an American Judge, Blackmun: "Humane considerations and constitutional requirements are not, in this day to be measured by dollar considerations."

The National Commission headed by Justice Venkatachaliah while reviewing the working condition of the Indian Constitution has taken a virtuous step. The commission has suggested for the conversion of the matters provided in Art 39A into a legally enforceable right under part III of the constitution. Commission has recommended a new Article listed as Art 30-B. The wording of the newly proposed article is as follows: "The State shall secure that the operation of the legal system promotes justice, on a basis of equal opportunity, and shall, in particular, provided free legal aid, by suitable legislation or schemes or in any other way to ensure that opportunities for securing justice are not denied to any citizen by reason of economic or other disabilities."[30]

It is submitted that the proposed Art 30A can be considered as a perfect legislation in giving justice to the needy. It ensures that the State will take all steps to assure that justice is given through law courts on the basis of equal opportunity.

In the light of the above discussion it is submitted that any plaintiff who is a victim of a toxic exposure can claim legal aid or any scientific aid or assistance to prove his

29 *Id* at 1376.

30 Report of National Commission to Review the Working of the Constitution (New Delhi, Government of India, 2002) Para. 2.4.3.

case, if he is coming under the list of persons mentioned under section 12 of the Act. It is further submitted that the persons who are financially week should also be entitled to avail the services under the Act if that financial incapacity is the sole constrain in securing justice. On the other hand, if state is the tortfeasor, there should not be any financial constraints in conducting any scientific research for proving the causation. The state should make necessary arrangements if the plaintiff has established a prima facie case against the state.

IMPOSING OF HEAVY COURT FEE AS AN OBSTRUCTION

In India, common man's access to justice is also blocked by imposing heavy court fee. In all suits, the law mandates to pay heavy court fees irrespective of parties, which have no rationale especially litigations in which state is the tortfeasor. If a claimant, who approaches the court of law as a last resort for securing justice, the doors of the courthouse should not be closed against him for the sole reason that he is not remitting the court fees. Even though if he is not coming under any of the exemptions provided by law like indigent or impoverished person, justice should not be denied if his financial capacity does not allow him to pay. It is beyond any doubt that court fees are one of the important revenue generations of the government as well as the technique useful to reduce frivolous and vexatious litigations. However, the government cannot justify the levying of heavy court fees on a poor claimant if his claim is for seeking remedy against the state for inflicting serious harm against him. In a recent case *Trial Lawyers Association of British Columbia* v. *British Columbia (Attorney General)*,[31] the Canadian Supreme Court has declared unconstitutional the hearing fee imposed by the state. Court rightly observed: "There is a common law right of reasonable access to civil justice.... The common law right of access to civil justice allows court fees, but only if there is an exemption to ensure that no person is prevented from an arguable claim or defence because he or she lacks the resources to carry on the proceeding.... Whether a person has the ability to pay the fees depends not only on wealth and income, but also on the amount of their reasonable, necessary expenses and the magnitude of the fees."

A march through the provisions of the Court Fees Acts in some of the states in India shows that there is no exemption to any plaintiff if he is a victim of the state. Considering the importance of the problem, the state should take urgent necessary

31 2014 SCC 59.

steps to waive the court fee if the plaintiff could establish a strong prima facie case against the state.

CONCLUSION

The bar of claim due to the time frame provided either in the Indian Limitation Act or any specific provisions contained in the special statutes like National Green Tribunal Act has its own definite principles and policy. The major justification of the barring is to provide repose to the defendants guaranteeing them that liability for the wrongful acts committed by them shall not be considered long past. The other reason is to avoid unfair and stale claims against defendants. It also reduces the burden of the judiciary and will save the time of the judiciary. At the same time, the bar should not be an absolute closure of the meritorious claims resulting in the complete negation of the valuable rights to be protected through courts of law. Indigent litigants may lately approach the court of law not because of their own fault but as a result of the technicalities which are outside their control. In such situations courts are bound to apply the rules of equity and decide the standing on the basis of the principles like 'discovery' and 'continuing violation.' Thus, if a toxic tort claim is based on the injury or its effect which has been discovered after the normal span of time, it should be considered as within the period of limitation from the date of discovery. Similarly, if the claimant has established that the tort in question was continuing in nature, he may be allowed to claim it till the completion of the duration of limitation from the last time or day of its continuation. The environmental courts and tribunals were established to boost the access to justice to the poor and needy. To do complete justice, it has to improve the initial access as well as the handling of the procedural niceties in a humane and rationale manner.

In India, in practice, it appears that poor man's and needy person's access to justice cannot be improved through Constitutional Courts and Green Tribunals since they are very few and it is also not advisable on cost basis. Therefore, immediate necessary steps should be taken to entrust it with the ordinary civil courts. At the same time, our law of limitation should be in tune with the time so as to accommodate any type of technicalities connected with the computation of the commencement and completion of the duration of limitation. The law should be amended and insert the doctrines like discovery and continuing violation.

A central fund corresponding to the General Insurance Corporation of India formed under section 9 of the General Insurance Business (Nationalisation) Act, 1972 should

be formed for providing immediate compensation in respect of death or grievous hurt to the victims of environmental torts. The cost of medical checking, scientific analysis or epidemiological studies should also come under this fund.

One of the important challenges facing by the access to justice in the Indian legal system is that the majority of the Indians though do not fall under the category of indigent are low income persons who need the support of the state to secure justice. The conceptual auditing of access to justice shall be conducted case to case basis and in whole in the light of factual realities. In any democracy a good legal system cannot survive unless it is striving to achieve equality of opportunity in securing justice to all sections in the population irrespective of the weight of their wallet.

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TRADE IN FORESTP RODUCTS AND THE WORLD TRADE ORGANIZATION: WHETHER FORESTS ARE AT RISK?

Bipin Kumar

- *The Trade and Environment Linkage*
- *World Trade in Forestry: Current Position and Impact*
- *Article XX Exception*
- *Labelling Programs and Other Trade Measures in Forestry*
- *Achieving a Balance: sustainable Forestry*
- *Conclusion*

5

TRADE IN FOREST PRODUCTS AND THE WORLD TRADE ORGANIZATION: WHETHER FORESTS ARE AT RISK?

*Bipin Kumar**

THE TRADE AND ENVIRONMENT LINKAGE

Trade and environment are two spheres which are *linked not by choice, but by fact*.[1] Trade in most goods or services ends up affecting the environment in one way or the other, creating clashes between trade officials and environmentalists.[2] For free traders, the word "*protection*" represents the consummate evil. For environmentalists, it is the ultimate good. Of course, for the trade community, "protection" conjures up dark images of Smoot and Hawley, while the environmental camp sees clear mountain streams, lush green forests, and piercing blue skies.[3]

Trade policy and particularly trade liberalization, inescapably affect the natural environment. And where environmental resources are mispriced, trade may magnify the harms. The WTO itself acknowledges this.[4] Simultaneously, environmental policy affects trade. The presence of regulatory requirements- health standards, emission limits, disposal requirements, labelling rules, and so on- cannels (and may confine)

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1 Daniel C. Esty, *Bridging the Trade-Environment Divide*, 15(3) JOURNAL OF ECONOMIC PERSPECTIVES 113 (2001).

2 Patti Goldman & Joe Scott, OUR FORESTS AT RISK: THE WORLD TRADE ORGANIZATION'S THREAT TO FOREST PROTECTION, *Earthjustice Legal Defense Fund Northwest Ecosystem Alliance* (September 1999).

3 *Id.*

4 THE WTO AFTER SEATTLE, INSTITUTE FOR INTERNATIONAL ECONOMICS 56 (ed. Jeffrey J. Schott, 2000).

trade flows, creating a potential for trade-environment clashes. As economic independence rows, the number of points of intersection expands and concomitantly so does the potential for conflict.[5]

While protection of the environment has become exceedingly important, and promises to be more important for the benefit of future generations, trade liberalization is important for enhancing world economic welfare and for providing a greater opportunity for billions of individuals to lead satisfying lives.[6] Thus, there is a policy discord which is not so unique. Indeed, there is some evidence that environmental policy and trade policy are complementary, at least in the sense that increasing world welfare can lead to citizen demands and governmental actions to improve protection for the environment. The poorest nations in the world cannot afford such protection, but as welfare increases protection becomes more affordable.[7]

The Seattle Fiasco

The most memorable assault on the WTO's environmental record came at its 1999 meeting in Seattle,[8] where *anti-globalization demonstrators dressed as sea turtles to highlight the alleged damage wrought by the organization's policies*. The Seattle Meeting was a fiasco; the talks failed because WTO was not willing to consider environmental and poverty issues adequately.[9] Similar protests have dogged multilateral trade meetings ever since. It would be foolhardy for future WTO trade talks to ignore the messages championed by grassroots activists in Seattle that future global trade negotiations must include consideration of sustainable forestry, labour, social, cultural, and environmental concerns. Of course, no one knows whether future WTO negotiations will better reflect the concerns raised in Seattle. Official post-Seattle statements from the WTO Director-General have been vague, promising only "open and balanced trade negotiations."[10]

5 THE WTO AFTER SEATTLE, INSTITUTE FOR INTERNATIONAL ECONOMICS 62 (ed. Jeffrey J. Schott, 2000).

6 John H. Jackson, *World Trade Rules and Environmental Policies: Congruence or Conflict?*, 49 WASH. & LEE.L.REV.1227 (1992).

7 Daniel C. Esty & Damien Geradin, *Market Access, Competitiveness, and Harmonization: Environmental Protection in Regional Trade Agreements*, 21 HARV. ENVTH. L. REV. 265 (1997).

8 3rd Ministerial Conference of the World Trade Organization, held in Seattle, (November 30 to December 3, 1999).

9 THE WTO AFTER SEATTLE, INSTITUTE FOR INTERNATIONAL ECONOMICS 62 (ed. Jeffrey J. Schott, 2000).

10 *See* Michael Moore, *Seattle Conference Doomed to Succeed* (Nov. 30, 1999) http://www.wto.org/wto/seattle/english/presse/press 156.htm.

WORLD TRADE IN FORESTRY: CURRENT POSITION AND IMPACT

Forests provide humans around the world with a wealth of commodities and vital ecological services, and are of great social and cultural value.[11] Despite the diverse values of forests, widespread deforestation and forest degradation has occurred in this century and continues today.[12] The United Nations Food and Agriculture Organization (FAO) reports that, *between 1980 and 1995, an area larger in size than Mexico (approximately 200 million hectares) was deforested*, mostly in the tropics.[13] The main cause of this forest loss has been clearing and conversion of forested land to other uses, such as agriculture, urban development, industry, human settlements, and infrastructure.[14] Additionally, the clearing of forests in the process of logging timber also causes considerable loss of forested land.[15] What role, if any, has trade liberalization played in this deforestation and forest degradation?

Trade Liberalization under the WTO and its implications for the World's Forests

The main rationale for the ongoing liberalization of international trade is to raise global standards of living by increasing economic efficiency, based on *the theory of comparative advantage*, propounded by *David Ricardo*.[16] The heart of the WTO regime lies in its obligation to reduce and eventually eliminate barriers to trade.[17] The GATT tackled trade barriers by first requiring parties to quantify non-tariff barriers into tariffs, and second, prohibiting the creation of further non-tariff restrictions.[18] The idea was to quantify all barriers into the same unit - tariffs - and then negotiate tariff concessions.

11 *See* Janet N. Abramovrrz, *Taking A Stand: Cultivating A New Relationship With The World's Forests* 9-10 Worldwatch Institute, Paper No. 140 (1998).

12 Nigel Dudley et. al., Bad Harvest? The Timber Trade And The Degradation Of The World's Forests 16 (1995).

13 Nature's Services: Societal Dependence On Natural Ecosystems 215-35 (Gretchen C. Daily ed., 1997).

14 Food And Agriculture Organization Of The United Nations, State Of The World's Forests 1999, at 1(1999).

15 Burton V. Barnes Er Al., Forest Ecology 436 (4th ed. 1998); David Pearce, *Global Environmental Values and the Tropical Forests: Demonstration and Capture, in* Forestry, Economics And The Environment11,14 (Wicktor L. Adamowicz et al. eds., 1996).

16 Nathalie Chalifour, *Global Trade Rules and the World's Forests: Taking Stock of the World Trade Organization's Implications for Forests* 12 Geo. Int'l Envtl. L. Rev. 575 (1999-2000).

17 Organization for Economic Co-Operation and Development, *Methodologies for Environmental and Trade Reviews,* OCDE/GD(94)103, at 7 (1994).

18 John H. Jackson,The World Trade Organization: Constitution And Jurisprudence, 139(1998).

a) Reduction and Elimination of Tariffs

Tariffs were once widely used by countries to protect their domestic industries from competition.[19] The GATT has significantly reduced tariff rates, from rates as high as 60 or 70% down to single digit rates or elimination in most cases. When tariffs are reduced or lifted, economic and trade theories demonstrate that the price of the imported product will be lowered and the quantity demanded of the good will concomitantly increase.[20] When a tariff is reduced or eliminated, the price of the affected imported product is lowered. The lower price generally leads to an increase in consumption of that good, depending on the price elasticity of demand for that item. The more price elastic demand is for an item, the more demand will rise in response to a price decrease.

Tariff reductions, therefore, have implications for forests because they can cause increases in the consumption of forest products and other commodities whose consumption affects forests. Edward Barbier considered the impact of tariff reduction under the Uruguay Round on trade in forest products.[21] He concluded that tariff reduction would create a small increase in demand, which in turn would lead to some trade creation and trade diversion.[22]

One of the proposals before the Seattle Ministerial Meeting was *the Accelerated Tariff Liberalization initiative*, which among other things proposed to eliminate remaining tariffs on forest products by 2004.[23] Because tariffs on forest products are generally already quite low, eliminating remaining tariffs on forest products will not raise global demand for forest products by a large percentage. There are some notable exceptions, however, where tariffs on forest products are not already low. For example, China, who is not yet a member of the WTO, and Malaysia still have high tariffs on raw forest products. Tariff reductions in these countries will have a greater impact on demand. Also, processed forest products (such as wood furniture) continue to be subject to higher tariffs than raw goods.[24]

19 *Id.* at 154.
20 *Supra* note 16 at 140-41.
21 Edward B. Barbier, Impact of The Uruguay Round on International Trade in Forest Products (1996).
22 *Id.* at 1.
23 Office Of The United States Trade Representative And Council On Environmental Quality, Accelerated Tariff Liberalization In The Forest Products Sector: A Study Of The Economic And Environmental Effects (1999), *available at* http://www.usia.gov/wto/tf1102b.htm.
24 I.J. Bourke & Jeanetre Leitch, Food And Agriculture Organization Of The United Nations, Trade Restrictions And Their Impact On International Trade In Forest Products(1998), *available at* http:// www.fao.org/forestry/fop/fophfbkleich/b98- 1.stm.

b) Reduction of Non-tariff Trade Measures

There are many different measures that countries may take to conserve forests, from setting aside protected forest areas to enacting laws regulating forest management practices. To the extent that measures impede international trade, however, they may be limited by trade agreements. For instance, the WTO prohibits the use of quantitative trade restrictions, such as quotas and export bans, with some exceptions.[25] Also, many agreements designed to clarify trade rules and further limit non-tariff trade measures have emerged under the WTO. Examples of such agreements include *the Technical Barriers to Trade Agreement, and the Agreement on the Application of Sanitary and Phytosanitary Measures*. These, too, have implications for forests. Finally, decisions made in future trade negotiations will further reduce many non-tariff measures. This section explores a number of current and proposed non-tariff measures that have implications for forests.

i. Quantitative Restrictions and Multilateral Environmental Agreements

The WTO's rules relating to trade restrictions may conflict with existing provisions in *multilateral environmental agreements (MEAs)* that are beneficial for forests. Such conflicts have implications for forests by potentially interfering with both existing MEAs and with the freedom of countries to negotiate provisions in new MEAs that might benefit forests.

Many MEAs contain trade-restricting measures that violate the WTO's rules on their face. Examples of such trade-restricting measures include explicit trade bans for endangered species under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)[26] and trade sanctions against non-signatories to the Montreal Protocol on Substances that Deplete the Ozone Layer.[27] If a challenge were made, an argument could be made that *the MEA is saved by Article XX of the GATT*, which allows parties to derogate from the general prohibition against quantitative restrictions by applying trade restrictions when necessary to protect animal, human or plant life, or to conserve exhaustible natural resources.[28] Alternatively, an

25 *See* General Agreement on Tariffs and Trade, Oct. 30, 1947, 61 Stat. A-1, T.I.A.S. 1700, 55 U.N.T.S. 194, art. XI.

26 Convention on International Trade in Endangered Species of Wild Fauna and Flora, Mar. 3, 1973, 993 U.N.T.S. 243.

27 Montreal Protocol on Substances that Deplete the Ozone Layer, Sept. 16, 1987, 26 I.L.M. 1541.

28 *See* GATT, Art. XX.

argument could be made under the Vienna Convention on the Law of Treaties[29] that *the environmental treaty supersedes WTO rules if it is more recent* than the trade rule, or that the rules of the environmental treaty apply because they are more specific. These arguments may fail, however, given the narrow interpretation of Article XX by the WTO thus far,[30] and the possibility that the WTO, established in 1995, would qualify all WTO-administered trade rules as 1995 rules (and therefore "later in time" than most MEAs).[31]

ii. Eco-Labelling and the Agreement on Technical Barriers to Trade

Eco-labelling is a policy instrument designed to give consumers *information about the impacts of a product on the environment and on prospects for sustainable development, so that consumers may make informed purchases*.[32] Most eco-labelling programs provide information about the processing and production methods relevant to the product. The extent to which WTO rules apply to eco-labelling programs is a subject of much current debate. The rules are fairly clear if a country imposes differential tariffs based on an eco-label. WTO rules generally prohibit countries from distinguishing between otherwise "like" products based on how they were produced. Therefore, if a country imposed a lower tariff on products carrying an eco-label, that country would risk violating WTO rules. Eco-labelling will be discussed in detail in the next chapter.

The European Union (EU) in 1994, for instance, developed an eco-labelling program for paper products that would, among other things, assign penalty points to producers for using virgin wood pulp in their products.[33] Upon reaching a certain number of penalty points, producers would no longer be entitled to an eco-label.While the program was to be entirely voluntary, governments were permitted to use the eco-label as a basis for purchasing preferences.[34] The U.S. forest products industry criticized this initiative on many grounds, including charging that the program relied on

29 Vienna Convention on the Law of Treaties, May 23, 1969, Art..30(3), 1155 U.N.T.S.331.
30 *See* GATT Dispute Panel Report on U.S. Restrictions on Imports of Tuna (Sept. 3, 1991), 30 I.L.M. 1594 (1991).
31 Nathalie Chalifour, *Global Trade Rules and the World's Forests: Taking Stock of the World Trade Organization's Implications for Forests* 12 GEO. INT'L ENVTL. L. REV. 575, 593 (1999-2000).
32 Elliot B. Staffin, *Trade Barrier or Trade Boon?A Critical Evaluation of Environmental Labelling and its Role in the "Greening" of World Trade*, 21 COLUM. J. ENVTL. L. 205, 209 (1996).
33 Christine Elwell, *"Sustainably Priced" Trade in Forest Products and Ecological Services: Some Legal Standards and Economic Instruments, in* GLOBAL FORESTS AND INTERNATIONAL ENVIRONMENTAL LAW 212 (1996).
34 *Id.*.

distinguishing between products based on production methods and provided misleading characterization of the environmental attributes of non-labelled products. The EU eventually abolished the program.[35]

The restriction against parties' differentiation of imported products sporting an eco-label, and the potential application of the TBT Agreement's rules to eco-labelling programs has implications for forests. Whether the TBT Agreement's disciplines apply to eco-labelling initiatives depend on whether the TBT Agreement's definition of product standards is interpreted to include standards of eco-labelling initiatives. Forest certification, as administered by the *Forest Stewardship Council (FSC),* allows consumers to purchase forest products that came from sustainably managed forests.

The inability of governments to favour FSC products upon import, however, and recent WTO rules on government procurement which generally preclude governments from preferring FSC certified products in their procurement policies,[36] will limit the FSC's potential to increase the amount of forested land that is managed sustainably. Because the FSC process is voluntary and independent, the program should be safe from WTO challenge.[37] However, some WTO members have argued that even voluntary and independent eco-labelling programs should be subject to WTO discipline.[38]

Implications of WTO rules relating to eco-labels for forests extend beyond the FSC. Initiatives like that of the EU, which favoured recycled content in paper products, would have lowered demand for products derived from virgin forests. Eco-labelling programs favouringproducts produced with less pollution could reduce the impact of pollution on forests. Thus, WTO rules impeding such programs also have implications for forests.

The implications for forests of WTO rules that impact eco-labels merit closer attention and negotiation within the WTO. The WTO's rules reach further than they should when they interfere with the right of consumers to make informed choices in their purchases.

35 *Id.*.

36 Robalino J. and Herrera, L. D. *Trade and deforestation: A literature review, Geneva: WTO*, BACKGROUND REPORT FOR THE WORLD TRADE REPORT 2010 (2009).

37 Voluntary and independent actions are not captured by the WTO rules, which are applicable to government actions.

38 Canada, for instance, recently suggested to the WTO Committee on Trade and the Environment that the FSCprocess should be subject to WTO rules.

iii. *Invasive Species and Sanitary and Phytosanitary Measures*

WTO rules pertaining to sanitary and phytosanitary measures may limit the ability of countries to restrict the importation of invasive species that might damage forests. The Agreement on the Application of Sanitary and Phytosanitary Measures[39] is the WTO agreement that governs countries' regulations pertaining to the protection of human, animal, and plant health from diseases, pests, additives, toxins, and other health-risking factors. It requires countries to satisfy a number of tests to justify trade-restrictive measures related to health protection. The WTO's rules on sanitary and phytosanitary measures have major implications for forests. *Invasive species*, such as *Chestnut Blight, Dutch Elm Disease, and Asian Longhorned Beetles, have caused severe ecological damage to forests*.[40] Because countries are not permitted to restrict imports in the absence of definitive scientific evidence of harm - which is often not available – more invasive species may make their way into forests around the world, contributing to forest degradation and, in some cases, forest loss. These rules effectively discourage precautionary measures relating to invasive species.

iv. *Export Bans*

The WTO's rules restricting the use of export bans will have an impact on the dynamics of forest products trade. These rules are likely to increase trade and potentially increase timber harvesting in jurisdictions where export bans are lifted.

Export bans are sometimes used by countries in an attempt *to encourage domestic processing of raw materials*. Several countries currently ban the export of raw logs in order to benefit domestic processing industries or to ensure that domestic industries have an adequate supply of raw logs in the face of declining supplies.' The United States, for example, has instituted an export ban on raw logs from public land in a number of western states.[41] British Columbia also has an export ban on raw logs.[42] These export bans may serve to slow rates of forest harvesting, depending on the capacity of processing plants in the jurisdiction subject to the export ban.

39 The Agreement on the Application of Sanitary and Phytosanitary Measures, Apr. 15, 1994.

40 Nathalie Chalifour, *Global Trade Rules and the World's Forests: Taking Stock of the World Trade Organization's Implications for Forests* 12 GEO. INT'L ENVTL. L. REV. 575 (1999-2000).

41 STEVEN LEWIS YAFFEE, THE WISDOM OF THE SPOTVIED OWL: POLICY LESSONS FOR A NEW CENTURY161 (1994).

42 *Id.*

Export bans are prohibited by the WTO,[43] though some countries still employ them. With its high demand for wood products, Japan opposes raw log export bans and may challenge these export bans under the WTO. If the bans are successfully challenged, this could affect forests by increasing rates of raw log exports. The impact of higher levels of raw log exports on forests depends, of course, on how the forests supplying the demand are managed. If they are truly managed sustainably, increased export demand should not have a negative impact.

v. Restrictions on Subsidies

The WTO's rules relating to subsidies may have both positive and negative implications for forests. By helping to internalize the environmental and social costs of timber harvesting, the elimination of some subsidies may benefit the forests. These rules may also, however, have negative implications for forests by limiting the use of subsidies that could be used to encourage sustainable forest management.

Broadly defined as *financial contributions by government bodies that confer a benefit on a particular enterprise or industry group*,[44] subsidies are subject to discipline under the WTO.[45] Export subsidies are prohibited.[46] Most other subsidies are made actionable, meaning that when countries can demonstrate injury to their domestic industries due to subsidized imported products, they can impose countervailing duties in the amount of the injury.[47]

Rules relating to subsidies have *important implications for forests*:

First, restrictions on subsidies can help *reduce price distortions on forest or agricultural products*, which can have an artificially low price when subsidized. Many governments sell timber to forest products companies from publicly owned land at below-market prices.[48] There are claims, for example, that British Columbia is subsidizing its timber industry by over one billion U.S. dollars annually based largely on below-market stumpage fees for timber harvested off of public land.[49] The impact of such

43 *See* GATT, Art. XI.

44 The financial benefit can vary from a direct transfer of money, forgiven loan, or service conferred. *See* JOHN H. JACKSON, THE WORLD TRADE ORGANIZATION: CONSTITUTION AND JURISPRUDENCE 139, 291 (1998).

45 *See, e.g.*, GATT, art. XVI; Agreement on Subsidies and Countervailing Measures.

46 *See id.*, arts. VI, XVI.

47 *See* Agreement on Subsidies and Countervailing Measures, art. 10.

48 LESTER R. BROWN ET AL., WORLDWATCH INSTITUTE, STATE OF THE WORLD 1999, at 76-77 (1999).

49 *Id.*.

subsidization, to the extent it may exist, is to create price distortions that favour the use of a forest to provide timber, rather than for other uses.[50]

Eliminating government subsidies on timber can help eliminate price distortions, thus achieving a more efficient allocation of resources and allowing the market to more accurately indicate scarcity. If adhered to, the restrictions on subsidies found within the WTO could help remove price distortions that occur within the forest products industry, which would allow the market to better react to forest loss and degradation (i.e., with higher prices for forest products) and likely cause some shifts in forest use (i.e., from timber harvesting to recreation). However, agricultural subsidies, notably export subsidies, were on the agenda at the failed Seattle Ministerial Meeting and are expected to feature in future WTO negotiations.[51] Disciplines to agricultural subsidies would help reduce price distortions on agricultural goods. Bringing truer prices to agricultural goods might lessen the rate of conversion of forested land for agricultural purposes.

Second, restrictions on subsidies, however, also *limit the ability of countries to subsidize industries that are incurring additional costs to implement sustainable forestry practices.* While subsidies create price distortions, their price-distorting impact may be outweighed by their potential social or environmental utility. In some cases, for instance, governments provide subsidies to an industry for costs incurred in reducing environmental impact. These subsidies are often referred to as "green subsidies" or "eco-subsidies."[52] An example relevant to forests would be the case of a government encouraging forest companies to employ sustainable harvesting practices by providing them some relief on stumpage fees or by giving the land managers a tax break for certifying forests under the FSC. Such subsidies, however, are inconsistent with the WTO rules.

One exception allowing "green" subsidies was included in the recent Agreement on Subsidies and Countervailing Measures.[53] This provision allows governments to fund

50 Claims that Canada subsidizes its timber industry have been the subject of a series of complex disputes between Canada and the United States over the last two decades. *See* ELIZABETH MAY, AT THE CUTTING EDGE: THE CRISIS IN CANADA'S FORESTS 52-55 (2004).

51 World Trade Organization, *Agriculture (1)-The Issue,* available at http://www.wto.org/wto/seattle/english/about e/07ag-e.htm.

52 Sykes, A. O., *The economics of WTO rules on subsidies and countervailing measures*, in MCCRORY, P. F. J., APPLETON, A.E., AND PLUMMER, M.G. (EDS) , THE WORLD TRADE ORGANIZATION: LEGAL, ECONOMIC AND POLITICAL ANALYSIS, Vol. 2 (New York: Springer, 2005).

53 *See* Agreement on Subsidies and Countervailing Measures, art. 8.2(c).

or subsidize up to 20% of a one-time capital investment required to satisfy new environmental rules without another country being able to impose a countervailing duty.[54] This rule was clearly designed with the case of pollution regulations in mind (where companies may have to acquire pollution education technologies to meet new environmental regulations), and would not

ARTICLE XX EXCEPTION

The key trading principles in the General Agreement on Trade and Tariffare:

(1) most-favoured-nation (MFN) treatment,[55]

(2) national treatment,[56] and

(3) non-discrimination in the administration of quantitative restrictions.[57]

The *MFN rule* requires member nations of the GATT/WTO to ensure that products imported from the territory of one member receive treatment no less favourable than like products imported from any other member. The *national treatment rule* requires members to treat imported goods like nationally produced goods. The *rule on non-discrimination with regard to import quotas* requires members to apply such restrictions to all like goods and not just to goods from a specific member country.

There are exceptions to these general principles, however, that permit members to justify national measures that violate one or more of these principles. Article XX, for example, provides exceptions for national measures that are; *inter alia,* necessary to protect human, animal, or plant life and health.[58] Article XX also provides an exception for national measures that conserve exhaustible natural resources.[59] This is the exception that permits members to have laws and regulations that preserve forests, fossil fuels, and other resources.[60]

54 *Id.*.
55 *See* General Agreement on Tariffs and Trade, Oct. 30, 1947, 61 Stat. A-1, T.I.A.S. 1700, 55 U.N.T.S. 194 art.I (regarding most-favored-nation treatment).
56 GATT, art.III(regarding national treatment of internal taxation and regulation).
57 GATT, art.XIII (regarding non-discriminatory administration of quantitative restrictions).
58 GATT,Art.XX(b).
59 GATT,art.XX(g).
60 Mike Meier, *GATT, WTO, and the Environment: To What Extent Do GATT/WTO Rules Permit Member Nations to Protect the Environment When Doing So Adversely Affects Trade?in*8 COLO. J. INT'L ENVTL. L. &POL'Y 241, 242 (1997).

As *John H. Jackson observed forty five years ago*, Article 20 may be the exception to the general principles of the GATT that is *most troublesome and most subject to abuse.*[61] The meaning of terms in Article XX such as "arbitrary and unjustified, discrimination," and "disguised restriction on international trade"are far from clear, and for guidance one must turn to the interpretations adopted by GATT/WTO Panels in solving specific disputes.

Several GATT/WTO cases have elaborated on the basic language of Article XX (b) and (g). In the *Tuna-Dolphin* cases[62] and in the Panel and Appellate Body decisions in the *Gasoline Case,*[63] the GATT/WTO Panels and Appellate Body considered the applicability of both Article XX (b) and Article XX (g). In the *Automobiles Case,*[64] the GATT/WTO Panel considered the applicability of Article XX (g). Unfortunately, the tests that can be extracted from these cases provide limited guidance for a member that plans to address specific environmental or health concerns in a way that might adversely affect trade. To complicate matters further, only the decision in *Tuna-Dolphin II,* the decision in the *Automobiles Case,* and the Appellate Body decision in the *Gasoline Case* have full precedential value, because the other decisions have been partially revised and superseded by subsequent decisions.

The test that can be extracted from the *Tuna-Dolphin II* decision for Article XX (g) is as follows:

When reviewing a challenged national measure, the Panel will analyse[65]:

(1) whether the policy purportedly embodied in the national measure is a policy to conserve exhaustible natural resources;

(2) whether the national measure is "related to" the conservation of exhaustible natural resources, and whether it is made effective "in

61 JOHN H. JACKSON, WORLD TRADE AND THE LAW OF GATT741 (1969).
62 GATT Dispute Settlement Panel Report on US Restrictions on Imports of Tuna, 30I.L.M. 1594 (1991).
63 WTO Report of the Panel in United States-Standards for Reformulated and Conventional Gasoline, 35 I.L.M. 274 (1996).
64 GATT Dispute Settlement Panel Report on U.S. Taxes on Automobiles, 33 I.L.M. 1397 (1994).
65 Mike Meier, *GATT, WTO, and the Environment: To What Extent Do GATT/WTO Rules Permit Member Nations to Protect the Environment When Doing So Adversely Affects Trade? in* 8 COLO. J. INT'L ENVTL. L. & POL'Y 241, 261 (1997).

conjunction" with restrictions on domestic production or consumption;

(3) whether the measure conforms with the requirements set out in the introductory clause to Article 20, that the measure not be applied in a manner that would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail or in a manner that would constitute a disguised restriction on international trade; and

(4) whether the national measure forces other members to change their policies within their jurisdiction. This final element, although central to the Panel's conclusions, was not articulated in the Panel's initial statement of the test under Article 20(g).

According to the Panel in the *Automobiles Case*, the text of Article XX (g) suggested a three-step analysis:

(1) *First*, it had to be determined whether the policy in respect of which these provisions were invoked fell within the range of policies to conserve exhaustible natural resources.

(2) *Second*, it had to be determined whether the measure for which the exception was being invoked-that is the particular trade measure inconsistent with the obligations under [the GATT]-was "related to" the conservation of exhaustible natural resources, and whether it was made effective "in conjunction" with restrictions on domestic production or consumption.

(3) *Third*, it had to be determined whether the measure was applied in conformity with the requirements set out in the introductory clause to Article XX, that the measure not be applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail or in a manner which would constitute a disguised restriction on international trade.[66]

66 GATT Dispute Settlement Panel Report on U.S. Taxes on Automobiles, 33 I.L.M. 1397, 1455 (1994).

In reviewing the Panel's decision, the Appellate Body in *US Gasoline*, first restated the Panel's relevant findings. The Panel had concluded that a policy against the depletion of clean air was a policy to conserve an exhaustible natural resource within the meaning of Article XX (g). The Panel, however, had also concluded that "the less favourable baseline establishment methods" were not primarily aimed at conserving exhaustible natural resources and thus were not justified by Article XX (g).[67]

According to the Appellate Body, the Panel failed to interpret the GATT properly in accordance with the Vienna Convention on the Law of Treaties (Vienna Convention).' Under Article 31 of the Vienna Convention, "a treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light ofits object and purpose.[68] Because Article XX(g) must be "read in context and in such a manner as to give effect to the purposes and objects of the GATT,[69] the phrase "relating to the conservation of exhaustible natural resources" should not have been read so expansively that it subverted the purpose and object of Article 3:4, nor should Article 4:4 have been interpreted so that it "effectively emasculated[70] Article XX (g) and its underlying policies. In other words, the articles should have be en interpreted co-ordinately.

LABELLIN GPROGRAMS AND OTHER TRADE MEASURES IN FORESTRY

Concern over the effects of non-sustainable forest management has spurred activities by importers, retailers, private certifiers, and governments to curb trade in products from non-sustainably managed forests. Section A explores why these actors resort to trade measures to address degradation of forests; section B explains what types of trade measures have been used for that purpose; and section C summarizes the objections of producer states.

A. Reasons for the Use of Trade Measures

Trade measures are not the first policy options that come to mind for curbing forest degradation. The efficacy of trade measures in changing policy in producer countries is insignificant when compared with strategies targeted at the root causes of

67 Gasoline Appellate Body Report, 35 I.L.M. 603.
68 Vienna Convention on the Law of Treaties,*opened for signature* May 23, 1969, S. EXEC. DOC. L, 1155 U.N.T.S. 331, *reprinted in* 8 I.L.M. 679 (entered into force Jan. 27, 1980).
69 Gasoline Appellate Body Report, 35 I.L.M.at622.
70 *Id.*.

deforestation such as poverty, overpopulation, land tenure systems, and the drive of large corporations (and governments that depend on such corporations) for profits.[71]

Moreover, many observers expect few benefits from trade measures for the protection of forests because the volume of trade in forest products is relatively limited and the possibilities for diversion are large.[72] Only a small percentage of the timber logged in operations causing degradation to forest eco-systems is harvested for export purposes.[73] Most timber harvested for commercial purposes is consumed domestically, often as fuelwood. About twenty-five percent of harvested tropical and temperate timber enters international trade.[74] These figures may reduce the impact trade measures have on forest management, and thus trade measures' positive impact may be limited to relatively few exporting areas.[75]

Why, then, do consumer states and private organizations resort to trade measures in attempts to limit forest degradation? Several factors appear relevant in explanation[76]:

1. ***First***, although only twenty-five percent of forest products enter international trade; this portion still has a value of $98 billion.[77] It thus represents an economic interest that may influence policies of target states.

2. ***Second***, states with relatively limited imports may exert leverage. The amount of timber imports to the Netherlands, for instance, is limited when compared to those of Japan. However, Dutch imports still affect 5.6 million hectares of temperate and boreal forests and

71 Mara Kimmel Hoyt, *Breaking the Trade Barriers: Common Property Solutions to Tropical Deforestation*, 5 Minn. J. Global Trade 195, 203-04 (1995).

72 Andre Nollkaemper, *Protecting Forests through Trade Measures: The Search for Substantive Benchmarks* in 8 Geo. Int'l Envtl. L. Rev. 389, 393 (1995-1996).

73 About 18%of tropical forest depletion is due to logging, with 64% due to agriculture, 10% due to fuelwood gatherers, and 8%due to cattle ranching. *See* PanayotisN.Varangis et *al., Tropical Timber Trade Policies: What Impact Will Eco-Labeling Have?* 4Geo.Int'lEnvtl. L. Rev.(March 22-23, 1993).

74 Food And Agric. Org., State Of The World's Forests 25 (1995).

75 Douglas C. Pattie, Timber Certification as a Policy Instrument for Sustainable Forest Development 9 (June 1994).

76 Andre Nollkaemper, *Protecting Forests through Trade Measures: The Search for Substantive Benchmarks* in 8 Geo. Int'l Envtl. L. Rev. 389, 393 (1995-1996).

77 Food And Agric. Org., State Of The World's Forests 25 (1995).

51,000 hectares of tropical forests annually - an area twice the size of the Netherlands.[78]

3. ***Third***, trade measures may be an important policy consideration for countries or regions with high timber exports. For instance, the relative size of timber exports is much higher for British Columbia than for Canada overall, and trade measures targeted at British Columbia could therefore significantly influence local forest management practices.[79]

4. ***Fourth***, trade measures may influence policy in forests other than those that export targeted products. Recent practice suggests that export states and industries, in both developed and developing countries, increasingly adopt nationwide labelling schemes and forest management standards to satisfy requirements of importing states, without confining such schemes to particular forests that are used for export purposes.[80]

5. ***Fifth***, unilateral trade measures may function as leverage for producer states to enter into negotiations with consumer states for possible agreements on forest management. As will be discussed in Part III, present treaties relevant to forestry are inadequate. Trade measures may induce states to negotiate proper criteria and disciplines governing forest management and trade in forest products.[81]

6. ***Finally***, the possibility that producer states may simply divert their exports is not a valid reason to abandon trade measures. Importing states have their own responsibility for forest degradation. Refusing to import timber from clearcuts that erase the last habitats of the endangered tiger in the Siberian forests, the rhino in the jungle of Sumatra, the spectacled bear in the cloud forests of South America,

78 CasBesselink, Netherlands Comm. For The Iucn, The Netherlands And The World Ecology 67 (1994).

79 Barbier, E. B. and Rauscher, M., *Trade, Tropical Deforestation and Policy Interventions*, 4(1) Environmental & Resource Economics 76 (1994).

80 Andre Nollkaemper, *Protecting Forests through Trade Measures: The Search for Substantive Benchmarks* in 8 Geo. Int'l Envtl. L. Rev. 389, 390 (1995-1996).

81 *See generally* Richard B. Bilder, *The Role of Unilateral State Action in Preventing International Environmental Injury,* 14Vand. J. Transnat'l L. 51, 79-83 (1981); Steve Charnovitz, *Free Trade, Fair Trade, Green Trade: Defogging the Debate,* 27 Cornell Int'l L.J. 459, 493-498 (1994).

the white-backed woodpecker in forests in Finland and Sweden, or the woodland caribou in northern forests[82] is not merely a lofty objective, but also a matter of law.

B. Recent Trade Measures: Typology

Concern about the degradation of forests and hope in the efficacy of trade measures have spurred importers and retailers,[83] private certifiers,[84] and governments[85] to establish trade measures attempting to curb trade in products from unsustainably managed forests. Because the variety of trade measures is large, a brief typology will help to define trade measures and the legal issues they raise.

Trade measures for forest products can be classified by making four distinctions[86]:

(1) between certification programs and other trade measures,

(2) between mandatory and voluntary certification programs,

(3) between government-sponsoredand privately-sponsored programs, and

(4) between eco-labels andsingle-issue labels.

***First*,** trade measures must be divided between certification programs and other trade measures, which include import bans, countervailing duties and tariff preferences. These measures raise legal questions that to a certain extent are comparable to those raised by certification schemes. Certification programs are used to certify imported forest products and mark or label them when certain criteria are met, such as when a product originates from a sustainably managed forest.[87] The policy assumption underlying certification programs is that an unlabelled forest product sends consumers

82 Envtl.Investigation Agency, How To Save The World's Forests, 10-11 (1995).

83 *See* Charles W. Thurston, *Timber Producers Seek U.S. 'Green Light,'* J. Com., July 11, 1995.

84 Examples include Scientific Certification Systems and the Rainforest Alliance. The Forest Stewardship Council (FSC) represents environmental and industry groups and accredits certifiers to guarantee that certified wood actually meets certain ecological criteria.

85 *See* Leslie Webb, *Eco-labels Stuck on Search for Common Standards,* 36 Pulp & Paper Int'l39 (1994).

86 Andre Nollkaemper, *Protecting Forests through Trade Measures: The Search for Substantive Benchmarks* in 8 Geo. Int'l Envtl. L. Rev. 389, 395 (1995-1996).

87 Jennifer Schultz, *The GATT/WTO Committee on Trade and Environment - Toward Environmental Reform,* 89 Am. J. Int'l. L. 423, 435 n.60 (1995).

a message that production of the product causes unacceptable harm to forests. For example, the U.S. dolphin-safe label was highly effective and nearly wiped outretail sales of Mexican tuna caught using the dolphin-killing pursuingnets). When certification is mandatory, timber from these areas must be segregated and products made thereof must be confined to the domestic market or to those export markets not requiring certification. When certification is voluntary, forest products from such areas can still end up on the shelves, but consumers have the additional option of purchasing products certified as "environmentally friendly."[88]

Second, certification programs are either mandatory or voluntary. Mandatory programs require that all imported products of a selected category be labelled. Voluntary programs allow the exporter to decide. States seem to prefer voluntary labelling programs over mandatory labelling- not so much for reasons of effectiveness (as trade impacts of voluntary labelling schemes remain uncertain) but rather to avoid conflict with producer states. The distinction has legal relevance because mandatory and voluntary labelling schemes are presumably examined under different rules,[89] but the core principles applying to mandatory and voluntary labelling are identical. Voluntary labelling schemes appear to be covered by Annex 3 of the TBT Agreement - the Code of Good Practice for the Preparation, Adoption and Application of Standards. This application of the TBT Agreement to voluntary schemes is contested, however.[90]

Third, a distinction can be drawn between government-sponsored labelling programs and private labelling programs. The number of government programs for forest products is limited. In contrast, activities by private, national, and international non-governmental organizations (NGOs) proliferate. This distinction formerly had some legal relevance under GATT, although the 1994 Agreement on Technical Barriers to Trade (TBT Agreement) has brought private certification programs under requirements

88 Staffin, E. B., *Trade barrier of trade boon? A critical evaluation of environmental labelling and its role in the 'greening' of world trade*, 12 (205) COLUMBIA JOURNAL OF ENVIRONMENTAL LAW(1996).

89 Mandatory labeling schemes are covered by the 1994 Agreement on Technical Barriers to Trade (TBT) as "regulations." *See* Agreement on Technical Barriers to Trade, LAW & PRACTICE OF THE WORLD TRADE ORGANIZATION, Booklet 1, 135 [hereinafter TBT Agreement], at 155 (Joseph F. Dennin ed., 1995).

90 *See WTO Trade and Environment Committee Agrees on Work Programme in Preparation for the Singapore Ministerial Meeting*, WTO Doc. Press/TE 006 (Dec. 8, 1995) ((summarizing differing opinions regarding the legal basis of voluntary schemes).

that are substantively equivalent to government program requirements.[91] Therefore, whenever this article makes reference to certification programs, these observations also apply to private labelling schemes covered by the TBT Agreement.

Fourth, labelling programs can be distinguished between eco-labels and single-issue labels. Eco-labels are labels that attempt to present an overall assessment of a product's environmental quality. Of the labels discussed in this article, only the labels based on EC Regulation 880/92 are defined as eco-labels. Single-issue labels, on the other hand, provide information on one aspect of a product, such as "dolphin-friendly" tuna, "biodegradable" detergents, or, in the present context, "sustainably harvested" timber.

Though trade measures aimed at timber products vary widely, they all share one important feature: they employ substantive norms against which forest management practices of different countries are examined. Such norms hold, for instance, that timber originating in primary forests,[92] or in conversion lands,[93] is *per se* unsustainable and cannot be certificated. These norms determine the information transmitted to consumers[94] and thereby establish the guidelines by which producer states must establish their policies.

C. The Dispute over the Choice of Norms for Forest Management

It is exactly the choice of these norms that has become the core of the dispute between producer and consumer states. The choice of norms has encountered legal objections from producer states[95] and from the international trade community. Unilateral consumer-state determination of what is sustainable forest management would be arbitrary and discriminatory, and would fail to address differences in the

91 Article 4.1 of the TBT Agreement provides that Members shall take "such reasonable measures as may be available to them" to ensure that non-governmental standardizing bodies accept and comply with the Code of Good Practice. What constitutes a "non-governmental standardizing body" is, however, not fully clear. Article 3.1 of the TBT Agreement contains a comparable obligation for mandatory labels. While the formulation ofthese obligations is more flexible than the obligation applying to labeling programs adopted by states, private labeling schemes are not exempt from legal disciplines.

92 Forest Stewardship Council, Fsc Principles And Criteria For Natural Forest Management, Principle 9, Document No. 1.2 (1995).

93 *Report of the Working Group of Experts on Sustainable Forest Management, in* 17 Evaluating Sustainable Forest Management (Jan. 1994).

94 *Report on Trade and Environment to the OECD Council at Ministerial Level* OECD Doc. GD(95) 63, para. 69 (1995).

95 European Report, *Paper Industry Criticizes Eco-Label,* Apr. 29, 1995.

circumstances of different countries. In three cases, producer states have disputed consumer states' choices of substantive norms.

In 1992, the Austrian Parliament adopted a law requiring mandatory labelling of tropical timber and tropical timber products marketed in Austria and a voluntary quality mark for timber and timber products from sustainably-managed forests.[96] Several Asian countries considered this law to be discriminatory, an unnecessary obstacle to trade, and an unjustified, unilateral attempt to dictate what constitutes sustainable forest management.[97] In response, Austria amended the legislation by removing the mandatory labelling requirement.[98] The new law provides for a voluntary quality mark for all timber products originating from sustainably managed forests. It is designed to influence trade as little as possible[99]- a far cry from the initial aim of influencing production to use more sustainable methods.

The Netherlands pursues a policy that seeks to ensure that only timber from countries or regions with a "*forestry policy and forest management system geared to protection -and sustainable production*" will be used.[100] The ideal expressed bythe Netherlands policy is that labelling systems promote the development and use of sustainable management systems for timber production and eventually eliminate trade in non-sustainably produced timber.[101] In addition to the Netherlands official policy, the Netherlands Parliament proposed a bill that would ban all imports of timber from non-sustainably managed forests after January 1,1999. Like the Austrian legislation, the Netherlands' policy on tropical forest products also invited criticism as an unjustified deviation from agreed-upon international standards, an intrusion into the sovereignty of producer states, and in conflict with trade law. Eventually, the Netherlands deferred the deadline for elimination of non-sustainably produced timber on the Dutch market until the year 2000.[102]

96 Lilly Sucharipa-Behrmann, *Austrian Legislative Efforts to Regulate Trade in Tropical Timber and Tropical Timber Products,* 46 AUSTRIAN J. PUB. & INT'L L. 283, 284 (1994).

97 *Austria - Mandatory Labeling of Tropical Timber and Timber Products and Creation of a Quality Mark for Timber and Timber Products From Sustainable-Forest Management,* GATT Doc. L/7110 2-3 (Oct. 23, 1992).

98 BGB 1 228/1993 (Austrian federal law for the creation of a quality mark for timber and timber products from sustainable exploitation).

99 Lilly Sucharipa-Behrmann, *Austrian Legislative Efforts to Regulate Trade in Tropical Timber and Tropical Timber Products,* 46 AUSTRIAN J. PUB.& INT'L L. 283, 289 (1994).

100 *The Dutch Government's Policy Paper on Tropical Rainforests* (1992).

101 *Id.* at 47.

102 *See Ban on Unsustainably Produced Hardwood Unlikely By End of 1995, Dutch Commission Says,* 17 INT'L ENV'T REP. (BNA) 478 (June 1, 1994).

The EC has implemented the most comprehensive scheme for forest products to date.[103] Under *Council Regulation 880/92*,[104] the Ecan award eco-labels for products marketed in the Community. Two 1994 decisions implement the regulation byestablishing criteria upon which the environmental performance of toilet paper and kitchen paper towels is to be assessed.[105] Several of the criteria included in these decisions are relevant to forest management.[106] For example, no eco-label will be awarded to forest products manufactured bymethods likely to cause significant harm to the environment, which, of course, includes forests.[107]

The criteria also indicate a strong preference for recycled paper rather than paper from virgin fiber- regardless of whether forests are sustainably managed.[108] Furthermore, all virgin wood used as raw material for pulp must originate from regions where "environmentally appropriate forest management" is applied.[109] Forest management practices must comply with the definition of sustainable forest management adopted by the 1993 Helsinki Conference on the Protection of Forests in Europe. Forest management practices in states that have not adopted this definition must comply with the Forest Stewardship Council's Forest Principles.

The EC eco-labelling scheme has come under fire. The U.S. forest and paper industry and the U.S. government consider European standards biased towards a European context, making it virtually impossible for U.S. forest products to enter the European market.[110] The American Forest and Paper Association (AF&PA), for example, has criticized the EC norm, and has proposed that U.S. producers be entitled to certify with respect to the AF&PA's own sustainable forestry norms.[111]

103 Amended Commission Proposal for a Council Regulation on Operations to Promote Tropical Forests, art. 4(l)(c), 1994 O.J. (C201) 15, 16.

104 Council Regulation 880/92, 1992 O.J. (L 99) 1 [hereinafter EC Eco-Labeling Regulation].

105 Commission Decision 94/924, 1994 O.J. (L 36) 24; Commission Decision 94/925, 1994 O.J. (L 364) 32.

106 Regulation 880/92 applies the concept of life-cycle analysis. The criteria for paper products also apply to emissions in water and air. Although these criteria have proved even more controversial for U.S. forest and paper industry, they will not be discussed here.

107 EC Eco-Labeling Regulation, art. 4(2)(b).

108 It follows from the Annex to the Eco-labeling scheme that the decisions award credit points for use of recycled fibers. The relative weight of these credit points means that paper products from recycled paper are treated more favorably, and are more likely to obtain an eco-label than products from forests, even when they are sustainably managed.

109 EC Decision 94/924, at appendix para. 1.1.

110 Rob Tucker, *Industry Chief Decries Eco-label*, NEWS TRBUNE, June 20, 1995, at El.

111 American Forest & Paper Association, *Comments on Proposed EU Ecolabel Criteria for Photocopying and Non-Impact Paper (Formerly 'Fine-Paper' Products),* at 4 (May 1995); *see* AF&PA *Guidelines, supra* note 21.

These examples call for two observations. First, government certification programs are still quite primitive. They use very general norms, and it is difficult to identify what exactly the authors of these laws had in mind when they attempted to discourage imports of products from 'non-sustainably' managed forests. The second observation is that there are strong arguments against implementation of unilateral policies of this type by European states. Historically, European forest management has been unsustainable in the extreme. It is far easier to satisfy requirements of sustainability in the plantation forests that now cover Europe than in the old-growth forests in the Pacific Northwest or in tropical rain forests. While this historical record does not necessarily affect the legality of trade measures for forest products, it does call for some modesty in scrutinizing other countries' forest management against a grand but undefined norm of sustainable management.

ACHIEVING A BALANCE: SUSTAINABLE FORESTRY

As the WTO struggles to handle environmental concerns, one issue looms above all others: the organization needs to figure out how to manage the clash between its open trade agenda and unilateral attempts by some member governments to protect the environment through trade restrictions. *The WTO must strike a balance between two extremes*. Cracking down too hard on the use of environmental trade restrictions invites environmental damage. But excessive leniency in imposing sanctions invites two other abuses: pressure on poorer countries to adopt standards that are ill suited to their strained economies, and suppression of trade that will lead to higher prices and stunted growth.[112]

Forests throughout the world are seriously threatened by exploitation and development.[113] Although a multitude of national laws proclaim that forests should be protected,[114] states have done little to mitigate this threat. Deforestation rates in

112 Michael M. Weinstein and Steve Cbarnovitz, *The Greening of the WTO* 80(6) FOREIGN AFF.147, 148 2001.

113 *Report of the United Nations Conference on Environment and Development,* Annex II, Agenda 219111.10, U.N. Doc.A/CONF. 151/26 (1992).

114 *See, e.g.,* Karen M. Schwab, *Added Hope for the Amazon Rainforest,* 15 HOUS. J. INTL. L. 163, 190-195 (1992) (discussing forestry laws in Brazil, Venezuela, Columbia, and Peru); Duane R. Gibson, *Sustainable Development and the Forestry Law of the Tongass National Forest andIndonesian Forests,* 31 WILLAMERRE L. REV. 403, 407 (Spring 1995) (discussing Indonesian and U.S. laws on forestry); Wong Kum Choon, *Management of Tropical Forest: The Policy of a Major Timber Exporting Country, in* NATURE MANAGEMENT AND SUSTAINABLE DEVELOPMENT 115, 117 (Wil Verwey, ed., 1989) (discussing legislation of Malaysia). For a summary of legislation of European states, *see* MINISTRY OF AGRIC. AND FORESTRY OF FINLAND, INTERIM REPORT ON THE FOLLOW-UP OF THE SECOND MINISTERIAL CONFERENCE(Helsinki 1993).

tropical countries remain high, driven by hunger for land and a booming demand for wood.[115] Forest cover in the temperate zone is increasing, but this cannot mitigate the degradation of many forests by air pollution, an over-emphasis on timber production, and a lack of conservation measures.[116]

Several states, including Austria, the Netherlands, and the European Community (EC), have responded to inadequate forest management practices by enacting trade measures for forest products. They aim thereby to induce producer states and forest product exporters to adopt more sustainable forestry policies. Under EC law, for instance, paper products from non-sustainably managed forests cannot obtain an "eco-label." The EC hopes that forest products without labels will not reach the consumer and that this will induce producer states and timber companies to abandon forest management practices deemed unsustainable by the Community.[117]

However, the status of the norm of sustainable forest management in the ITTA is weak. The commitment by consumer states is not legally binding, and the commitment of producer states is not as solid as the text suggests. Consumer states do not appear to wish to hold producer states legally accountable for a failure to comply with the norm.The broad acceptance of the norm "sustainable forest management" is important. It shows that states and regional entities, such as the EC, do not base their trade measures on a unilaterally postulated norm, but on a norm accepted by all producer and consumer states.

CONCLUSION

Many decisions to further liberalize world trade and clarify current trade rules will be made in future WTO negotiations, as well as within other existing or emerging regional or bilateral liberalized trade blocks. These decisions will have profound implications not only on the economy of this century, but also on social and cultural policies and on the environment. The public made it clear at the Seattle Ministerial Meeting that trade negotiations must take these broader implications into account.

115 See FOOD AND AGRIC. ORG., *State Of The World's Forests* 29-30 (1995) (discussing tropical forest loss).

116 *See WWF Cites 'Political Neglect' as Biggest Threat to Forests in Europe,* 18 INT'L ENVTL. REP. (BNA) No. 12, at 797 (Oct. 18, 1995).

117 Andre Nollkaemper, *Protecting Forests through Trade Measures: The Search for Substantive Benchmarks* in 8 GEO. INT'L ENVTL. L. REV. 389, 390 (1995-1996).

This paper demonstrates that the WTO has many serious implications for forests, some direct and others indirect, some positive and others negative. While the rules relating to tariff measures on forest products are not likely to have a serious global impact, there are likely to be important regional impacts. Further, rules reducing tariffs on products other than forest products will also have implications for forests, and these should be further explored before more tariff reductions are made. The WTO's disciplines relating to non-tariff measures have a multitude of implications for forests. Important multilateral environmental agreements could come under attack from WTO rules. Restrictions and uncertainty on the ability of countries to treat products differently based on their processing and production methods have major implications for forests, reducing the capacity of countries to ensure that forests are sustainably managed, as well as limiting the potential success of market mechanisms, such as forest certification. Similarly, rules limiting the use of trade restrictions on invasive species could have a serious impact on forests, which are highly vulnerable to exotic pests and diseases. Disciplines on subsidies have positive implications for forests, potentially reducing price distortions on forest products, though they also limit the extent to which governments can subsidize forest product companies employing sustainable forest practices.

In conclusion, the WTO has many implications for forests, positive and negative, most of which are not well understood. Before further decisions are made within the WTO, member countries should take stock of the implications of the WTO's current and proposed rules for forests and ensure that its rules are reformed to lessen negative impacts on forests and bolster positive impacts. Similarly, negotiations relating to existing trade regimes, or intended to develop new trade agreements, should take these implications into account. Countries have an obligation to current and future generations to be informed about the implications of their decisions on trade for forests.

Only once the implications for forests of trade liberalization are fully appreciated can informed policy choices truly be made and evaluated. With a full understanding of the links between trade liberalization policy and the future of forests, policy-makers will be in a position to capture synergies between the two policy goals. Policy-makers will also need to make compromises between values. However, those compromises should not be made in the absence of information. At the Seattle Ministerial Meeting, some countries proposed a conference of the WTO parties to discuss reform of the WTO. Such a conference would be an opportune time for

WTO countries to demonstrate responsibility and stewardship by undertaking to ensure the world trade system promotes sustainable trade for a sustainable economy. An important element of doing this will be to assess the WTO's implications for forests.

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6

PROTECTING THE ENVIRONMENT – A WAY OF LIFE

Manjeri Subin Sunder Raj

- *Prologue*
- *Conceptualising the Environment*
- *The Roots of the Concept of Sustainable Development*
- *Our Earth – Bhumi Devi*
- *Protection of Flora and Fauna*
- *Protection of Water and Air*
- *Internalising Religious Concepts into Law*

6

PROTECTING THE ENVIRONMENT – A WAY OF LIFE

*Manjeri Subin Sunder Raj**

Born of Thee, on Thee move mortal creatures;
Thou bearest them-the biped and the quadruped;
Thine, O Earth, are the five races of men, for whom Surya (Sun),
As he rises spreads with his rays the light that is immortal.

Atharva Veda 12.1-15

PROLOGUE

If one can say that there is an indigenous religion, or as it is said "a way of life" for India, then the search for the same ends at Hinduism. India was formerly addressed by the Western world as 'Hind' which meant 'the land on the other side of the Indus River'. Over time this grew into a culture, addressed as Hinduism. '*Sanatana Dharma*'[1] is the word which is used by India for this religion. The important part of the principle is that it is not limited to humans alone. It is said to be that quality that unites all beings with the universe and ultimately to God- the original source of their existence. It is based on the belief that every religion aims to correlate God, humanity and nature.

Religion, as far as India is concerned has shaped the culture, living and even one's habits and Hinduism is no exception. There is no single founder for the religion as such. Its origin has been said to have evolved from the culture and traditions that have been present in ancient India.

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1. It means the eternal occupation of the soul; the Eternal Truth.

Indian culture can be said to be a mixture of three varied cultures that were present from ancient times. It was from modern day Iran that the Aryans migrated to India between 3000 and 1500 B.C. By the time that they arrived in India, the Mohenjo-Daro and Harappan culture was prevailing at its zenith in Northern India. Similarly in southern India, the Deccan culture flourished till about 1000 B.C. Hinduism, it can said, evolved from the amalgamation of all three cultures mentioned above.[2]

The Vedas, an assortment of sacred as well as philosophical verses and mantras in Sanskrit; its origin traced as early as 3000 B.C, is believed by Hindus to be the inspired word of God, given at the universe's birth, to Brahma. The journey towards liberation and a release from the birth and death cycle is the central theme of these writings.

Hinduism, the third biggest religion[3], after Christianity and Islam, with more than a billion adherents, has its major base in the South East Asian nations with the bulk of the population residing in India and neighbouring countries.[4]

CONCEPTUALISING THE ENVIRONMENT

One has to understand the basic tenets and concepts that are prevalent in Hinduism to understand the concept of environment and environmental protection in Hinduism. The Hindus believe in the concept of '*Brahman*'.[5] It is believed that all Gods, Goddesses and everything else is a manifestation of '*Brahman*', which includes the whole range of things present, right from sub-atomic particles. Consisting of different forms of matter, energy, and *gunas*[6], apart from it being pure, active as well as passive, the *brahmana* is ever expanding. These *gunas* are subtle in their nature. It is to be noted that the universe contains both animate as well as inanimate life. It is due to this fact that Hindus see divinity in everything.[7] So they believe that all these divine forces

2. Available at http://www.arcworld.org/faiths.asp?pageID=5, accessed on 02/11/2016.
3. http://en.wikipedia.org/wiki/Hinduism, accessed on 20/10/2016.
4. *Ibid.*
5. This means an 'all pervading divine force'.
6. It is a primordial matter, literally meaning to be a 'string' or 'a single thread or strand of a cord or twine'. The primary three are associated with the notions of creating (*sattva*), preserving (*rajas*), and destroying (*tamas*). http://en.wikipedia.org/wiki/Guna, accessed on 16/03/2016.
7 It is clear from the Vedas that nature worship was prevalent in ancient India. For an in depth analysis see, Dr. Raja Ram Mohan Roy, *Vedic Physics, Scientific Origin of Hinduism*, Golden Egg Publishing, Toronto, 1999; Yudhishthira Mimansaka, *Vaidika Siddhanta Mimansa*,

have played an important role in sustaining life on this Earth. In order to please God, so that the same relation continues, the Hindus believe that they are to live in harmony with his creation. It can be seen that these thought have given rise to various customs and practises that are still followed by traditional Hindus.[8]

The Earth[9] is considered to be a manifestation of divinity and as a result of the same she must be treated with respect. There are a lot of principles that are present in Hinduism that play a great role in governing the relation between the people and the environment. Certain cardinal principles are expected to be followed and believed by all Hindus.

- The five elements space, air, fire, water, and earth form the basis of an interconnected world.
- Dharma or 'duty' includes our responsibility to care for the earth.
- Simple living highlights and underlines the importance of sustainable economies.
- How we treat nature directly affects our karma.

Moving on to discuss the various tenets of Hinduism, it is quite imperative that we look into the ancient scriptures as well as the ancient word. The Vedas occupy the highest pedestal as far as the ancient thought is concerned. There are 4 Vedas- namely The Rig -Veda[10], Sama -Veda[11], Yajur -Veda[12] and the Atharva -

Sonipata, 1976; A.R. Panchamukhi, *Socio-economic Ideas in Ancient Indian Literature*, Rashtriya Sanskrit Sansthan, New Delhi, 1998; Ranchor Prime, *Hinduism and Ecology: Seeds of Truth,* Cassel Plc, London, 1992; Dr. Sashi Tiwari, "Origin of Environmental Science From Vedas", available at http://sanskrit.jnu.ac.in/conf/stait/uploaded_papers/Shashi-Tiwari.pdf, accessed on 08/04/2016.

8. Before laying down the foundation of a building, a priest will conduct *Bhoomi Pooja,* to revere Mother Earth and ask for forgiveness, as she is being violated.
9. Rig-Veda 3-55-14 describes Nature as Mother Prakrti and Yajur Veda 18-30 describes Earth as an adorable immortal mother. Earth, is referred in the Vedas as 'Prithvi Devi'.
10. The Rig-Veda or 'The wisdom of verses' contains 1028 hymns; has 10,589 verses divided into ten '*mandalas*' or 'book-sections' dedicated to thirty-three different Gods.
11. The Sama-Veda or 'The wisdom of chants' is a collection of '*samans*' or chants, derived from the eighth and ninth books of the Rig-Veda, meant for the priests who officiated rituals of the soma ceremonies. It contains instructions about how particular hymns must be sung; to put great emphasis upon sounds of the words of the mantras and the effect they could have on the environment and the person who pronounced them.
12. The Yajur-Veda or 'The wisdom of sacrifices' lays down various sacred invocations or '*yajurs*', chanted by a particular sect of priests called '*Adhvaryu*' who performed the sacrificial rites. The Veda also outlines various chants which should be sung to pray and pay respects to the various instruments which are involved in the sacrifice.

Veda[13]. It is through these Vedas that the key ideas of Hinduism were first laid down. This importance that they have can be seen from the fact that it was from these principles that many were borrowed and put into use by rulers in ancient times. It is interesting to note that they have also contributed much for the principles of law that we, at present follow. The roots of our laws can very well be traced back to the Vedas.

The concept of Henotheism[14] that is a key to Hindu theology has been laid down in Vedic hymns and poems. The Vedas comprise the oldest literature available to refer as regards the origin of anything and everything[15].

'Prakriti' and the 'Pancha Mahabhuta' Concept

The concept of the "*Pancha Mahabhutas*"[16] plays an important role in helping us understand the concept of life as envisioned by Hinduism. According to Hindu teachings, five elements weave the web of life; namely, *Akash*[17], *Vayu*[18], *Jal*[19], *Agni*[20] and *Prithvi*[21]. According to Hindu belief, the mortal body is not only composed but also connected to these and thus forms a strong relationship between the humans and the environment. Hinduism considers nature as a part of us; an inseparable, important part of us that is the reason for our existence. These constitute our very own bodies. So they are neither alien nor hostile as far as us, humans are concerned.

13. The Atharva-Veda or 'The wisdom of the Atharvans', a compilation of hymns, is called so because the families of the Atharvan sect of the Brahmins have traditionally been credited with the composition of the Vedas.
14. Henotheism is the idea that one God takes many different forms and that although individuals may worship several different Gods and Goddesses, they really revere only one Supreme Being. Available at http://en.wikipedia.org/wiki/Henotheism, accessed on 10/10/2016.
15. J. Norman Lockyer, *The Dawn of Astronomy,* The M.I.T. Press Classic, Massachusetts Institute of Technology, 1894; Also see Chapter 10-Ancient Indian Approach to Environment in Dr. S. R. Myneni, *Environmental Law*, Asia Law House, Hyderabad, 2008, p.83
16. The five great elements.
17. Space.
18. Air.
19. Water.
20. Fire.
21. Earth.

These five elements derive themselves from '*Prakriti*'[22]-the primal energy. Vedas refer to it as *Mahatava*[23] that can create the *Pancha mahabhutas* and a large number of gross elements. It is believed that each of these elements have an independent life and form. When we consider these five elements together we see that they are interconnected and interdependent.[24] This concept has played a great role in creating a sense of care towards the environment. The concept behind the same is Vedic metaphysics which relates to One Supreme Reality, as Supreme Father and Prakriti, as Supreme Mother. Prakirti or '*Matar*' came in contact with '*Pitar*' -the indescribable and amorphous God. Rig Veda mentions that *Prakriti* is mighty, benevolent and virtuous.[25] It is said that all women should have complete knowledge of *Prakriti*[26]. Rig-Veda[27] describes Prakriti as *Mahatatva*, which forms *mahabhuta* and *bhuta*.[28] The spirit of God is the creative force of *Prakriti* which is present in in all living and non-living things.[29]

Modern Sanskrit uses the word '*Paryavarana*'[30] for the environment. In Atharva Veda, similar words, like *Vritavrita*[31], *Abhivarah*[32], *Avritah*[33], *Parivrita*[34] etc are used. A verse in the Atharva -Veda[35] where the tree cover is mentioned as '*Chandamsi*' defines the

22. In the Vedas 'nature' is described as '*Prakriti*', a manifestation of God, i.e. divine Nature, from which all material things arise. The process of attributing divinity to nature can be found from time immemorial. For more details see, Dr. Raja Ram Mohan Roy, *Vedic Physics, Scientific Origin of Hinduism*, Golden Egg Publishing, Toronto, 1999, p.58; S.R.N. Murthy, *Vedic View of the Earth*, O.K. Printworld, New Delhi,1997, p.12.
23. The great subtle element or primordial matter of three *gunas.*
24. These are detailed in the Upanishads which explain the interdependent nature of all these elements with the Brahman,: "*From Brahman arises space, from space arises air, from air arises fire, from fire arises water, and from water arises earth*".
25. Rig Veda 4-20-6.
26. Atharva Veda 11-1- 23.
27. 1-164-15.
28. These are elements and have similar properties like alloys.
29. Rig Veda 1-22-1.
30. It means that which encircles us, which is all around in our surroundings.
31. Atharva Veda 12.1.52.
32. *Id*., 1.32.4.
33. *Id*., 10.1.30.
34. *Id*., 10.8.31.
35. '*Wise utilize three elements variously which are varied, visible and full of qualities. These are water, air and plants or herbs. They exist in the world from the very beginning*'. Atharva Veda 18.1.17.

Vedic view on environment. According to the Aitareya Upanishad[36], five basic elements, as discussed earlier, form the universe.

It is said that nature has created a balance between all these and any disturbance of this balance beyond permissible limits would definitely cause harm to all the living beings. This universal order, known as '*Rita*'[37] aims to reduce chaos to cosmos, and provides order and integration to matter. H. W. Wallis had opined that this has been in existence before the manifestation of any other phenomena.[38]

As said earlier, Hindus believe that everything is a manifestation of '*Brahman*'. They believe that '*Ishavasyam*'[39] is omnipresent i.e. it is present in each and every form and things that one can see in this universe. It is also believed that divinity takes infinite forms also. It can be seen in the Hindu texts such as the *Bhagavad Gita*[40] and the *Bhagavad Purana*[41] there are a lot of references that throw light upon the omnipresent nature of a superior being, seen all along nature as well as within nature.

'Dharma', 'Karma' and 'Moksha'

One major principle of Hinduism is '*dharanath dharma ucyate*', which means "that which sustains all species of life and helps to maintain harmonious relationship among them is '*dharma*'". One the same footing "that which disturbs such ecology is '*adharma*".[42]

When one talks about 'Dharma' it can be said that protecting the environment forms part of one's Dharma as far as Hinduism is concerned. The same is considered as an important expression of Dharma. In earlier times the concept of environment was akin to the spheres of activity of the communities present and did not pose to be a different realm.

36. Aitareya Upanishad 3:3.
37. A.A. MacDonnell, *A History of Sanskrit Literature*, MLBD, 1965, pp.61-62.
38. H.W. Wallis, *The Cosmology of the Rig Veda* , Cosmo Publications, New Delhi, 1999, pp.94-95.
39. Divinity.
40. 7.19; 13.13.
41. 2.2.41; 2.2.45.
42. It can mean duty, virtue, cosmic order. Swami Vibudhesha Teertha, "Sustaining The Balance-Hindu Faith Statement", available at http://www.arc world.org/faiths.asp?Pageid=77, accessed on 03/12/2014.

A number of rural Hindu communities like the Bishinois,[43] Bhils[44] as well as the Swadhyaya[45] have strong communal practises that are aimed and intended to protect the environment. The most important feature of these communities was that they engaged themselves into such environment protection and conservation practises not as an 'environmental' act but did so as their expression of dharma. This feature can be seen expressly in their acts wherein they do everything that they can in order to protect and safeguard the environment.

The Bishinois play a great role in protecting the animals and trees. Building *Vrikshamandiras*[46] and *Nirmal Nirs*[47] are done by the Swadhyayis. The Bhils on the other hand practise their rituals in '*sacred groves*'. It is to be noted that when they engage themselves into these activities what is being done is that they simply express their reverence to nature and creation all over. They are not 'restoring the nature' but are doing such acts that worship nature as such. Their high regard for nature and all that it encompasses can be understood from this very fact. Religion, ecology, and ethics are not seen differently by these traditional Indian groups, but are seen as part of their dharma and thereby are treated with utmost reverence and respect.

The concept of '*Karma*'[48] holds an important position as far as Hinduism is concerned. It is said that our environmental actions affect our karma. Similarly the concept of 'reincarnation'[49] which brings about some sort of an inter-connection of creation is

43. A community in Rajasthan who have practises environment conservation and treats it as part of their religious duty. An offshoot of Hinduism, Guru Maharaj Jambeshwar founded this in the 15th Century A.D. He formulated twenty nine injunctions, out of which one was a ban on the cutting of any green tree and killing of any animal or bird. For more details see http://www.impactlab.net/2010/05/05/bishnois-eco-conservation-as-a-religion/, accessed on 02/11/2016; Dr. Kiran Prasad, 'Eco-religion of the Bishnois of Rajasthan' available at http://www.hvk.org/ articles/0807/ 135.html, accessed on 02/10/2016.
44. Bhils, the bow men of Rajasthan, are the most widely distributed tribal groups in India. Divided into two main groups- the central or pure bills and eastern or Rajput Bhils , the former are found in the mountain regions of Madhya Pradesh, Maharashtra, Gujrat and Rajasthan and the latter in the north eastern parts of Tripura; For further reading see http://www.ecoindia.com/tribes/bhils.html, accessed on 20/11/2016.
45. Swadhyay Parivar, a group of people in a family setting, study Vedic scriptures and carry out various activities of self development. The term '*swadhyaya*' literally means study of self for a spiritual quest in a devotional way. Available at http://www.swadhyay.org/, accessed on 31/03/2016.
46. Tree temples.
47. Water harvesting sites.
48. The law of cause and effect.
49. Hinduism believes in the reincarnation in both human as well as animal form.

believed in. Thus it is believed that all of life and matter is part of one big family and teaches mutual respect and reverence.

Hindus believe that one has to perform his '*Dharma*'[50] well so that he would attain '*Moksha*'.[51] The final aim of a Hindu is to end this reincarnation cycle and attain '*Moksha*' so that the '*Atman*'[52] can become one with '*Brahman*'. The actions that we do in the present life control our future life. It is believed that our attitude towards nature has karmic consequences and moral attitude towards the same would lead to good karma and lead to salvation. In order to facilitate good '*dharma*' it can be noted that there are prayers to keep the mind free from bad thoughts.[53] It can be seen that in reference to the cultural consciousness of the sages there is quite a lot of discussion regarding pollution of the mind and precautions to be taken to avoid the same.[54]

The principle of '*Ahimsa*'[55] has been considered to be the greatest Dharma by Hinduism. The practise of this to the Earth it is believed improves one's *karma*. Moreover the practise of the same is considered to be advancement towards '*Moksha*'. It is based on this principle of non violence that many Hindus oppose the breeding and killing for human consumption.

The concept of '*Sanyasa*'[56] epitomises a route towards liberation as has been explained before. The practise is good for the Earth as it takes into account the fact that the Earth is our mother and the provider. The concept represents a path to liberation- '*Moksha*', as was explained earlier. Restraint in consumption of things and simplicity in living are the two most important attributes that one can see from this concept. Respect for the Earth is what has been envisaged by this concept.

50. Duty.
51. Salvation.
52. Soul.
53. Shivasankalpa Sukta, Yajur Veda 34:1-6.
54. Nandita Singhavi, *Veda Me Paryavarana*, Sonali Publications, Jaipur, 2004, pp. 313- 356.
55. Non violence.
56. It is the order of life of the 'renouncer' within Hindu scheme of '*âúramas*' or life stages. It is considered the topmost and final stage of the ashram systems and is traditionally taken by men at or beyond the age of fifty years old or by young monks who wish to dedicate their entire life towards spiritual pursuits. In this phase of life, the person develops '*vairâgya*', or a state of dispassion and detachment from material life. He renounces all worldly thoughts and desires, and spends the rest of his life in spiritual contemplation. Available at http://en.wikipedia.org/wiki/Sannyasa, accessed on 31/10/2016.

The Roots of the Concept of Sustainable Development

Hindus ought to maintain the highest ethical standard, highlighted by the idea '*Sarva Bhuta Hita*'[57], wherein common good has preference over individual good. Its effect on the community is to be considered rather than taking into account the good effects that would be limited to a selected few.

The well known Hindu concept of '*Tain tyakten bhunjitha*' conveys the way whereby we are to make use of the resources made available at our disposal. The idea conveyed by the same is to '*Take what you need for your sustenance without a sense of entitlement or ownership*'. This ensures that we do not waste the resources that we find on this Earth and we keep in mind the fact that it is not only us humans that need those resources but all other living organisms are in need of the same. The same can be seen as put clearly as follows

'*Everything in the universe belongs to the Lord.*

Therefore take only what you need, that is set aside for you.

Do not take anything else, for you know to whom it belongs'[58]

The rationale of 'sustainable development' that we follow today can be seen etched in this principle. It ensures that not only the present generation gets to make use of all the resources that the Earth has to offer; but the coming generations too have necessarily the same right.

OUR EARTH – BHUMI DEVI

The Earth is considered as 'Devi'- a Goddess.[59] She is considered as our mother and due to that very fact is accorded with all the protection and devotion that can be attributed to her. Extending their gratitude towards Mother Earth is one of the main ingredients of various rituals that are present amongst the Hindu community. The '*Kolams*'[60] are an expression of the Hindus' aspiration to give something back to Mother Earth in response to her gifts. The importance that Mother Earth has over

57. Dr. Suresh Basrur , "How Religion can Protect the Environment", available at http://astrovision.ca/pages /articles /hinduism-and-environment.php, accessed on 31/09/2016.
58. Isa Upanishad.
59. Atharva Veda 12.1.12; For further information as to how the Earth is viewed see- S.R.N. Murthy, *Vedic View of the Earth*, D.K, Printworld, New Delhi, 1997; R.T.H. Griffith, *The Hymns of the Atharvaveda*, D.K. Publishers, New Delhi, 1995.
60. Artwork drawn before the entrance of a home.

us can be understood from two verses that are present in the *Bhumi Sukta*- Atharva -Veda.

> "*Earth, in which lie the sea, the river and other waters, in which food and cornfields have come to be, in which lives all that breathes and that moves, may she confer on us the finest of her yield. Earth, in which the waters, common to all, moving on all sides, flow unfailingly, day and night, may she pour on us milk in many streams, and endow us with lustre*".[61]

> "*May those born of thee, O Earth, be for our welfare, free from sickness and waste, wakeful through a long life, we shall become bearers of tribute to thee. Earth my mother, set me securely with bliss in full accord with heaven, O wise one, uphold me in grace and splendour*".[62]

Tantric and yogic traditions of religion play a great role in shaping up the relation that one has with nature. These traditions that are age-old spell out the sacredness of the relation that we have with Mother Nature and it confirms the sacredness of material reality. It gives rise to various teachings by which a unity is created amongst people and it contains a lot of practises to unite people with divine energy. '*Yoga*'[63] refers to a series of mental and physical practises which are specifically designed to connect the individual with this divine energy. Such age old customs confirm that all singularities and matter are divine expressions. The most notable fact is that they consider Earth as a Goddess.

It can be seen that Charaka[64] who totally rejected the *Vedas* treated *Vayu* (air) *Bhumi* (earth), *Jala* (water), *Agni* (fire) as important factors.[65] This also gave rise to the Samkhya[66] school, which highlighted care and concern for our ecology.

Hinduism considers human beings, the Almighty and the environment as basic parts of one organic whole, glorified by Hindu writers. These writers characterised divine

61. Atharva Veda - Hymn to the Earth - Bhumi-Sukta.
62. *Ibid.*
63. The word is derived from the Sanskrit word meaning 'to yoke' or 'to unite'.
64. He is an atheist philosopher of ancient India. For more details see http://en.wikipedia.org/wiki/Charaka, accessed on 12/11/2016.
65. http://www.scribd.com/doc/36015552/Environmental-Concept-in-Indian-Thoughts, accessed on 02/11/2016.
66. Sage Kapila founded this school, treated as one of the six schools of classical Indian philosophy. Available at http://en.wikipedia.org/wiki/Samkhya, accessed on 31/07/2016.

forces and personified each of them as a '*Devata*'.[67] It was as a result of this that a sense of Godliness came to be attributed to the same and that played a great role in enhancing the human interest in protecting the same. The Atharva -Veda says '*Earth is my mother. I am her son*'.[68]

A Hindu prayer highlights the interrelation with nature: "*There is peace in heavenly region; there is peace in the environment; the water is cooling; herbs are healing; the plants are peace-giving; there is harmony in the celestial objects and perfection in knowledge; everything in the universe is peaceful; peace pervades everywhere. May that peace come to me!*"[69]

Various references ensure us of the close relation that the religion and its followers have with nature. A few are reproduced to show the relation that exists between the two.

"*O Earth, O Mother, disposes my lot*
In gracious fashion that I be at ease.
In harmony with all the powers of Heaven
Set me, O Poet, in grace and good fortune!"[70]

"*The air is his breath; the trees are the hairs of his body,*
The oceans his waist, the hills and mountains are his bones,
The rivers are the veins of the Cosmic Person,
His movements are the passing of ages"[71]

All these convey the importance of the symbiotic relation that one should have with nature, lest we ourselves suffer from the consequences that are sure to arise. Various other references are there which convey the idea of protection.

In the Bhagavad Gita, Sri Krishna and Arjuna have a conversation, which conveys the idea that a life which has made no contribution whatsoever in preserving ecology is sinful and lacks specific purpose or use.

67. It means a deity worthy of reverence and worship. For more details see http://en.wikipedia.org/wiki/Devata, accessed on 31/09/2016.
68. Prithvi Sukta or Bhumi Sukta hymn.
69. Shanti path.
70. Atharva Veda, 'Hymn to the Earth'.
71. Srimad Bhagavatam, Vol.2 Chp.1 Verses 32-33.

> "*Living bodies subsist on food grains, which are produced from rains. Rains are produced from performance of yajna [sacrifice], and yajna is born of prescribed duties. Regulated activities are prescribed in the Vedas, and the Vedas are directly manifested from the Supreme Personality of Godhead. Consequently the all-pervading Transcendence is eternally situated in acts of sacrifice. My dear Arjuna, one who does not follow in human life the cycle of sacrifice thus established by the Vedas certainly lives a life full of sin. Living only for the satisfaction of the senses, such a person lives in vain*".[72]

People engaged in such actions were cursed: "*A person, who is engaged in killing creatures, polluting wells, and ponds, and tanks and destroying gardens, certainly goes to hell*".[73] Hindu literature identifies titles of Bhupalana[74], Bhupala[75], Bhubharata[76], all of which convey the fact that duties were cast upon the rulers as to ensure that they took steps to protect the environment.[77] The principle '*tat sristva ta devanu pravisat*'[78] throws light upon the fact that God is present everywhere.

The following verse gives strength to this line of thought.

'*On me the Universe is strung*
Like clustered pearls upon a thread
In water I am the flavour
In sun and moon the light'[79]

PROTECTION OF FLORA AND FAUNA

There are lots of references that have been made so as to ensure that we play our part in the protection of nature. The protection that we afford to the trees and plants plays a great role in the religious tenets of Hinduism. There are various

72. Bhagavad Gita, 3:14-16.
73. Padmapurana, Bhoomikhanda 96:7-8.
74. Protector of the Earth.
75. Earth guardian.
76. Husband of the Earth.
77. Judge C.G. Weeramantry, in his speech at World Future Council, titled "Hinduism, the Environment and the Long Term Future" referred to the same. An abridged version is available at http://www.asiantribune.com/index.php?q=node/6083, accessed on 12/11/2016.
78. In the Upanishads there are references that '*after creating the Universe, God entered into every object created*' which confirm the idea that divinity resides in every object created and thereby it necessitates that all creation should be treated with respect.
79. The words of Lord Sri Krishna in the Bhagavad-Gita.

teachings that ask us to do the same and it conveys the reason for the same. It is quite astonishing that at such an early time the raison d'être for the same was known to the philosophers and teachers.

When one takes into consideration the teachings, it can be seen that Hindu teaching specifically asks us to be in a harmonious relation with all forms of life. Thus not only animals are subjected to our protection but the same amount of protection is accorded to plants as well. Lord Sri Krishna opines that the world is akin a banyan tree which has limitless branches under which every animal, human and demigod wander.[80]

Tree worship was very common during the Rig Veda days and to the seers the tree was a symbol of various attributes that were attached to God. The Vedas in particular the Rig Veda regarded plants having divine powers. This can be realised from the fact that one entire hymn[81] in the Rig Veda has been devoted solely for their praise. The healing properties have been conceptualised in that. '*Avi*', explained in AtharvaVeda, turns out to be 'Chlorophyll'.[82] The Hindu respect for flora and fauna can be seen in the Ramayana, the Mahabharata and the Puranas. It can be seen that trees were now considered as animate beings and was considered to have emotions of happiness and sorrow.

The importance that has been attached to trees can be realised when we understand the concept that they were treated as '*vrikshadevata*'.[83] It is interesting to note that they are worshipped with prayers and offerings. Encircling them with sacred threads show the level of devotion that people have in their minds as far as that tree is concerned. The Hindus consider it as a religious duty to plant trees.

It can be seen that there are references that are made which suggest that regular planting of trees is a means to achieve heaven.[84] This shows the importance attributed for the same. Moreover there are descriptions of a great plantation ceremony the '*Vriksha Mahotsava*' which suggest the importance of the same.[85] Planting a tree has

80. Bhagavad Gita.
81. Rig Veda 10.97.
82. Atharva Veda 10.8.31; Kapil Dev Dwivedi, *Vedic Sahitya Avam Sanskriti*, Varanasi, 2000, p.337.
83. Tree deity.
84. Matsya Purana 59.159 '*He who plants even one tree, goes directly to Heaven and obtains Moksha*'. It also describes the method to plant them. '*Clean the soil first and water it. Decorate trees with garlands ... Offer prayer and oblation and then sprinkle holy water on trees. ... After such worship the actual plantation should be celebrated*'. Varaha Purana 12-2-39.
85. Matsyapurana; Padmapurana.

been likened to having ten sons.[86] There are references that '*those who want better future should plant good trees around tanks, and raise them like sons, as the trees are considered like sons in our religion*'.[87]

The importance of trees can be found by the presence of a number of hymns which mandate their protection. One should not destroy the tree[88], Plants are mothers and Goddesses[89], trees are homes and mansions[90], sacred grass has to be protected from man's exploitation[91], plants and waters are treasures for generations[92]. It is said that '*even if there is only one tree full of flowers and fruits in a village, that place becomes worthy of worship and respect*'.[93] Their cutting down was seen as a heinous act[94]. It can be safely said that the Hindu veneration of trees and plants is based on their religious duty and mythology though they can be said to be partly based on utility too.

It is believed by Hindus that the contribution which is done to maintain the interrelationship of all living beings would naturally amount to worship of God. As Hindus believe that all life has a soul, a penance called '*visva deva*'[95] when one kills them for food, need be done.

Hinduism treats animals also as part of nature. They are classified into three groups -sky animals, forest animals and animals in human habitation.[96] When we go through the Vedas, various hymns give a feeling that the animals should be protected and are healthy.[97] These rights have been extended to both domestic animals as well as wild animals. For example the cow was seen as a symbol of wealth and prosperity.[98]

The problem of pollution that we face at large today was kept in mind during the ancient times. The principle which exhorts '*Do not cut trees, because they remove pollution*'[99]

86. Matsyapurana 5-1-2.
87. The Mahabharata, Anu Parva 58/31.
88. Rig Veda Samhita VI-48-17.
89. *Id.*, X-97-4.
90. *Id.*, X-97-5.
91. *Id.*, VII-75-8.
92. *Id.*, VII-70-4.
93. The Mahabharata.
94. Kautilya's Arthasastra prescribed various punishments for destroying trees and plants.
95. Visva deva is nothing but an offering of prepared food to the Creator, asking His pardon.
96. Rig Veda 10.90.8.
97. Yajur Veda 19.20, 3.37; Atharva Veda 11.2.24.
98. N.M. Kansara, *Agriculture and Animal Husbandry in the Vedas*, Nag Publishers, New Delhi, 1995, pp. 126-138.
99. Rig Veda, 6:48:17.

and '*Do not disturb the sky and do not pollute the atmosphere*'[100] all show the close relation that we are to have with nature and to protect it from the nuances that would certainly arise. It is quite interesting to note that years back the ill effects of deforestation were deciphered. The act of deforestation was likened to state devastation whereas afforestation was treated as a sacred duty.[101]

The Importance of Flora in Rituals

When Hinduism considers that everything in the universe is sacred it also includes within it everything that grows in the universe. According to the belief the spirits that inhibit trees are the yakshas feminine deities[102] and they are venerated. It is interesting to note that certain plants like the tulsi are worshipped daily whereas some others are revered during specific festivals. The Peepal tree[103] is one such sacred tree both for Hindus as well as Buddhists[104] as well as the Banyan tree, Chandra-mallika Naga Keshara etc. Trees sacred to Shiva are the famous Ashoka, Kesara and Champaka.

Vedas, Upanishads, Dharmasindhu, Nirnaya-sindhu, Vishwamitra Karika, and Brahma- karma- samuchchaya are some scripts which stress and reveal methods to encourage better human health and maintain the environmental balance.

When we take into account the plants and products from trees that are used as a part of the rituals that form part of Hinduism, it can be seen that such practices have helped in protecting and propagating plant biodiversity protection since Vedic times. It is to be noted that the use of plants in such rituals and traditions in a way ensure that they are protected and taken care of. The continuation of such rituals and traditions help in the balancing of nature as the plants and trees used would be protected in order to make them available for such rituals and tackle their scarcity.

The Concept of 'Sacred Groves'

It is quite interesting to note that there are certain concepts that arose alongside religion while dealing with the protection of environment that played a great role in providing a manifestation which could be seen and understood to be the real and

100. Yajur Veda, 5:43.
101. Charaka Samhita.
102 Male figures never appear in such a connection.
103. Ficus religiosa.
104. It is also known as the bodhi tree because Gautama Buddha attained enlightenment under it.

direct result of the environmental care that has been attributed to religion and its teachings.

Sacred groves[105] are one such external manifestation of the same. They contain trees of immense spiritual significance.[106] They are seen as community based repositories of biological diversity.[107] The importance of the same as when compared to religion and religious practises is understood when one realises that the reason for the protection of the same is as a result of the religious beliefs and faith, i.e., the trees are protected due to their religious significance. Specified areas are earmarked as sacred groves and established rules are prevalent amongst communities to ensure their protection.[108] It can be seen that realising their value in the present scenario various steps have been initiated so as to ensure their protection.[109]

Protection of Water and Air

The importance that water holds has been clearly understood[110] and every step has been taken so as to ensure that it is kept pure and free from overuse and exploitation. The life giving ability of water is recognized in Rig Veda.[111] Water being one of the most basic needs it is quite natural that there are quite a lot of references for the same. It is said to represent splendour[112] and bear off all defilements and cleanse people.[113] It is said that water is to be freed from defilement.[114]

105. K. C. Malhotra, Y. Ghokhale, S. Chatterjee and S. Srivastava, *Cultural and Ecological Dimensions of Sacred Groves in India*, INSA, New Delhi, 2001.
106. http://en.wikipedia.org/wiki/Sacred_grove, accessed on 18/07/2016.
107. Ishani Pruthi, "Preservation of Sacred Groves and Forests", 4 Gene News 2 (2009); For further study see K. C. Malhotra, Y. Ghokhale, S. Chatterjee and S. Srivastava (Eds.), *Cultural and Ecological Dimensions of Sacred Groves in India*, INSA, New Delhi, 2001; K.A. Sujana, C. Sivaperuman, "Status and Conservation of Threatened Flora in Selected Sacred Groves of Coastal Kerala", 14 Eco-News 2 (2008).
108. It can be seen that the Khasi and Garo tribes which are prevalent in North East India completely prohibit any human interference. But it can be seen that the Gonds of central India allow the fallen parts to be used. Likewise tradition amongst the people does not allow anyone to remove any item from the sacred groves at Iringole kavu in Kerala.
109. K.P.M. Basheer, "State to Provide Armour for Sacred Groves", available at http://www.hindu.com/2010/04/23/stories/2010042354140400.htm, accessed on 19/11/2016; Also see http://www.zeenews.com/news620925. html, accessed on 06/11/2016.
110. 'There was only water in the beginning'. Brihadaranyaka Upanishad V-5-1.
111. Rig Veda Samhita I-10-9.
112. Atharva Veda Samhita III-13-5.
113. Vajasaneya Samhita IV-2.
114. Atharva Veda Samhita X-5-24.

The importance of water as a cleansing agent can be understood from the fact that it is said that water cleanses humanity from the evil of pollution committed by it.[115] The fact that water should be free from pollution is made clear by the verse that '*Water and herbs should have no poison*'.[116] The verse '*offerings are dedicated to waters of wells, pools, clefts, holes, lakes, morasses, ponds, tanks, marshes, rains, rime, streams, rivers and ocean*'[117] shows that offerings are made in order to recognise the gift of water on the Earth. '*Waters are healing and they strengthen one to see great joy*'[118] gives an insight into the healing powers of water. Thus it can be said that water being considered as one of the most precious gifts that has been provided for us by nature, its position at the pinnacle has justified the various methods and exhortations that have been made for its conservation.

Since Hinduism believes a lot in the cleansing of both physical as well as mental attributes, water plays a great role to play. As a result, water is revered and it is believed that water has spiritually cleansing powers. It is as a result of such a thought process that almost all Holy places related to Hinduism are found on the banks of rivers. Water is considered by Hindus as a purifier, life-giver, and destroyer of evil. Milk and water are symbols of fertility according to Hinduism. The presence of temple tanks nearby Hindu temples has a great significance. It is believed that a dip would cleanse the body and spirit. It is to be noted that since such beliefs are present the tanks are kept clean and acts as a source of water when there is a scarcity for the same. Water is used as the cleansing agent for poojas and all rituals that are associated with it.

A divine status has been accorded to rivers as far as India is concerned due to their role in shaping Indian culture and civilization. The river basins of Ganga and Yamuna were the seats of ancient Indian civilization and as a result have been worshipped from time immemorial. Ganga is known for her purity and divinity whereas Yamuna is known for her devotion. Such a status being attributed to the rivers would automatically ensure that they would be taken care of. Even though the present condition of these rivers are nowhere near the state that we would like it to be, it has to be kept in mind that such a status being conferred upon the would definitely help to attribute some sort of a protection for the same.

115. *Id.*, XII-2-40.
116. Rig Veda Samhita VI-39-5.
117. Taittiriya Samhita VII-4-13.
118. *Id.*, VII-4-19.

Air pollution has also been discussed for the fact that air is one of the basic elements. According to Hindu belief the significance of '*vayu*', laid down in Shatapatha Brahmana[119] opines that the verse[120] clearly shows that '*vayu*' cannot mean air alone[121]. Since the same has a high relevance the concept has been present in many Vedic verses.[122] Care has been attached so as to ensure its quality.

INTERNALISING RELIGIOUS CONCEPTS INTO LAW

According to Hindu belief, man, made of nine elements[123]- Earth, Water, Fire, Air, Sky, Time, Directions, Mind and Soil, plays a great role in bringing about harmony. It is interesting to note that environment is explained by the Indian thought as transcendental in nature. As a result of such a line of thought it is perceived that all things biotic or non biotic have life. It is this line of thought that has played a great role in ensuring that this religion plays a great role in protecting the environment and all that it encompasses.

It is in awe that the modern scientist looks upon sages who aim for peace in the *'Shanti Mantra'*. They stress on co-ordination and inter-relation among all natural powers. The prayer conveys that all creatures should live in harmony and peace. The *mantra* describes the harmony with the universe '*peace of sky, peace of mid-region, peace of earth, peace of waters, peace of plants, peace of trees, peace of all-gods, peace of Brahman, peace of universe, peace of peace; May that peace come to me*!'[124]

The amount of faith that the believers have in the tenets, thoughts and precepts show the level of effectiveness that the religion has in protecting the environment. However more important is how these thoughts and precepts are transformed in accordance with the changes that take place in the society. It is noted that Hinduism, a way of life, allows for these thoughts to be ingrained in daily life. Thus it is by far an effective tool in furthering the process.

119. 8.7.3.10.
120. '*Sun and rest of universe is woven in string. What is that string, that is Vayu*'.
121. Dr. Raja Ram Mohan Roy, *Vedic Physics, Scientific Origin of Hinduism*, Golden Egg Publishing, Toronto, 1999, p. 84; Jaiminiya Brahmana 1.192; Yajur Veda 1.24; Shatapatha Brahmana 8.7.3.10.
122. Rig Veda 10.186.2; 1.37.2; 10.186.1.
123. Tatvas.
124. Yajur Veda 36.1; Atharva Veda 19.9.94; A.C. Bose, *The Call of the Vedas*, Bhartiya Vidya Bhavan, Mumbai,1999, p.281.

The presence of an elaborate caste system in Hinduism shows that it has been present for quite a long time and is a rigid setup. It is interesting to note that there is a line of thought that has been put forward by an ecologist, Madhav Gadgil and an anthropologist, Kailash Malhotra in this regard.[125]

They connect its basis to the concept of sustainable development. They opine that this concept controlled the society by dividing the use of natural resources in accordance with professions or castes. Thus a system arose which regulated the occupation that one could take up and thereby created a check and balance system on the use of resources which was by far effective in reducing competition for limited resources. But with the advent of the British rulers this started to disappear as there was a large demand for resources so as to facilitate development and soon everyone was running helter-skelter.

Ecological conservation through the Hindu approach can be understood by going through the concept of '*Yavat bhumandalam datte samrigavana karnanam, tavat tisthati medhinyam santatih putra pautriki*'. This means that '*so long as the Earth preserves her forests and wildlife, man's progeny will continue to exist*', highlighting that nature is an indispensable part on which the whole of human race is dependent on. If there is no nature and no produce that we derive from her, then the very continuation of the human race on this Earth would come to a definite end. It is keeping in mind this aspect, that Hinduism makes it sure that man and nature go hand in hand. This principle can be said to be the guiding light which shines upon all Hindus and ensure that they do their part to preserve and protect the environment and all that it encompasses. A sense of oneness with nature and a co-relation between all animate and inanimate things present in nature has been developed as a result of this line of thinking.[126] What has to be understood is that the presence of such beliefs is by far the best option for the protection of the environment.

Reformative punishment aims to make man understand the wrong in his acts and tries to create a sense of repentance in man when he realizes his mistake. Law, as said earlier, many a time lacks this sort of an effect on man. The course of the study

125. http://history-of-hinduism.blogspot.com/2010/07/spirit-of-hinduism.html, accessed on 02/11/2016.

126. For more details refer Nandita Verma, "Religion: A Saviour for Environment with particular Emphasis on Hinduism", available at http://www.iitk.ac.in/infocell/announce/convention/papers/contextandhumanresources 04-NanditaVerma.pdf, accessed on 21/08/2016.

shows that law has not been able to stop man from destroying the environment, owing to his wanton acts. There are a lot of laws that were passed to protect the environment, when it was realized that it needs to be protected. But were they successful? But was the so called 'law' successful in protecting the environment by deterring man from his anti-environment acts? The answer is a big and blatant, on the face, '*No*'! This is made evident by the innumerable circumstances that have been caused by man, wherein he was plundering the resources given by nature, shamelessly and consciously. Mother Nature was suffering at the very behest of her 'loving' sons and daughters! Law, with all the sanction that it prescribed was not able to restrict man from harming the environment.

An alternative for law was sought and the research work dealt with religion being mooted as the alternative. Religion, as we all are aware of, has a control over its followers that is far beyond common man's perception. It has been able to mold man and restrict his activities in a way that is conducive to its teachings. Religion thereby exerts a much higher influence on man than laws that are present. What is it that religion has in it that law lacks? It is this secret ingredient of religion that ensures that its principles are followed. Religion, it can be found has an impact on man that law is not capable of exerting. Law has its limitations, owing to man treating it as an external factor; a factor that is imposed on man by reason of him being a subject of a particular land. It is this aspect of religion that helps it big time to score in an area where law has not been able to make its mark. *Duty bound*, sure does convey a lot! Read these duties into law and lo behold, you see a changed world order!

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I, Dr. R Venkata Rao, on behalf of National Law School of India University, Bangalore, hereby declare that the particulars given above are true to the best of my knowledge and belief.

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