Environmental Standards and the Right to Life in India: Regulatory Frameworks and Judicial Enterprise

1. Introduction

India, a nation of 1.34 billion people,[1] has a range of laws and enforcement agencies that respond to a market driven, developing country. There is a strong environmental policy, legislative framework and well-established institutions at both national and state levels. However, India's increasing prosperity has resulted in growing public awareness and a consequential demand for improved environmental quality. Environmental laws and associated standards aim to ensure the maintenance of environmental quality parameters and maintain the ecological balance. The state has also enjoyed the benefits of the transplantation of environmental standards from developed nations and international institutions thereby promoting domestic standards. Powerful ministries notably the Ministry of Environment, Forest and Climate Change claim to operate under the aegis of sustainable development. However, the regulatory instruments and normative standards, often piecemeal and sectoral, have failed to encompass the holistic nature of the environment and human well-being. The gap between increasing public demand for environmental protection and the enforcement failure to implement the legislation and related rules has promoted supplementary institutions such as specialised green tribunals associated with environmental governance. Consequently, judicial intervention to protect the environment and ecology assumes enhanced importance. Fortunately, India benefits because of its pro-active, imaginative judiciary, particularly concerning environmental protection and through the expansive interpretation of the right to

[1] http://www.indiaonlinepages.com/population/india-current-population.html accessed 12 October 2017

life under Article 21 of the Constitution of India.[2] Any threat to the environment or ecology can lead to the violation of the right to life under Article 21 which attracts judicial intervention. Judicial initiatives focus on conservation including preservation, maintenance, sustainable utilisation, restoration and enhancement of the natural environment that are vital for the sustenance of all forms of life.

This chapter traces and evaluates the origin and scope of standards within environmental rights in India through both the regulatory framework and judicial enterprise. Accordingly, the chapter is divided into three parts. Part 1 offers an account of how the Indian judiciary has locked together the Constitution and the environment via public interest litigation (PIL) and reviews how the National Green Tribunal (NGT) has utilised key sections of the Constitution to promote the right to environment. Part 2 presents and reviews the process of transplantation of normative standards and the fundamental weakness of the effective application of both imported and domestic standards. It demonstrates both the unusual importance of the Indian judiciary and how a specialist tribunal using in-house expertise provides science based insights to develop standards that deal with the protection of India's environment and society. Finally, the conclusions are laid out in Part 3.

2. Development of an environmental right: constitutional mandate and judicial innovation

In India, there is no direct legal articulation of the right to environment, neither in the Constitution of India nor in statute law. The proactive judiciary in the 1980s acting as 'amicus environment' through innovative and creative judicial craftsmanship developed a

[2] Article 21 of the Constitution of India states: 'No person shall be deprived of his life or personal liberty except in accordance with the procedure established by law.'

new, broad based, people oriented approach that promoted access to justice and environmental jurisprudence. The use of PIL emerged as a procedural tool 'redressing public injury, enforcing public duty, protecting social, collective, "diffused" rights and interests or vindicating public interest.'[3] Importantly, the interpretation of three Constitutional provisions (Articles 21, 48A and 51A (g)) resulted in a major change to India's environmental landscape.

Significantly, the Indian Supreme Court has articulated an expansive interpretation of Article 21, the right to life: it being a fundamental right. Article 21 of the Indian Constitution reflects the US Justice William Brennan's vision of a living Constitution helping to understand and provide an expansive formulation of human dignity.[4] The Indian judiciary's commitment to interpret the Constitution to allow it to progress as a living document from then to now is a chronological transformative process that both recognises and benefits the welfare of contemporaneous society. To quote Justice Brennan, '[a]s we adapt our institutions to the

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[3] S. P. Sathe, *Judicial Activism in India* (OUP 2002) 217; P. N. Bhagwati, 'Judicial Activism and Public Interest Litigation' (1984) 23 *Columbia Journal of Transnational Law* 561; *Kesavananda Bharathi v State of Kerala* (1973) 4 SCC 225. Also see, U. Baxi, 'Taking Suffering Seriously: Social Action Litigation in the Supreme Court of India' (1985) *Third World Legal Studies* 107-109. Baxi describes it as 'social action litigation' (SAL) and argued that whereas PIL in the United States has focused on ''civic participation in governmental decision making'', the Indian PIL discourse was directed against ''state repression or governmental lawlessness'' and was focused primarily to support the rural poor

[4] W. J. Brennan, 'The Constitution of United States: Contemporary Ratification' (speech given on October 12, 1985, at Georgetown University as part of its *Text and Teaching Symposium, Georgetown University*)

ever-changing conditions of national and international life, those ideals of human dignity-liberty and justice for all individuals-will continue to inspire and guide us because they are entrenched in our Constitution. The Constitution with its Bill of Rights thus has a bright future, as well as a glorious past, for its spirit is inherent in the aspirations of our people.'[5]

Contextualising Brennan's visionary aspiration, the Indian judiciary interpreted Article 21 of the Constitution of India allowing the protection of the right of citizens to live a quality of life that reflects human dignity. In *Francis Coralie v Delhi*[6] Justice Bhagwati stated: '[w]e think that the right to life includes the right to live with human dignity and all that goes along with it, namely, the bare necessities of life such as adequate nutrition, clothing and shelter over the head and facilities for reading, writing, and expressing oneself in diverse forms.'[7] However, the human dignity principle becomes illusionary in the absence of the right to environment. Subsequently, the Supreme Court of India in *Virender Gaur v State of Haryana*[8] observed expansively:

> [a]rticle 21 protects the right to life as a fundamental right. Enjoyment of life ... including the right to live with human dignity encompasses within its ambit, the protection and preservation of the environment, ecological balance free from pollution of air and water, sanitation, without which life cannot be enjoyed. Any contra acts or actions would cause environmental pollution. Environmental, ecological, air and

[5] Ibid

[6] AIR 1981 SC 746

[7] Ibid 753

[8] (1995) 2 SCC 577; also see *Municipal Corporation of Greater Mumbai v Kohinoor CTNL Infrastructure* (2014) 4 SCC 538; *Court on its Own Motion v Union of India* 2012 (12) SCALE 307; *In re Noise Pollution* AIR 2005 SC 3136

> water pollution, etc . . . should be regarded as amounting to a violation of Article 21. Therefore, a hygienic environment is an integral facet of the right to a healthy life and it would be impossible to live with human dignity without a human and healthy environment . . .[9]

The Supreme Court expanded the constitutional provisions, identified above, by introducing innovative substantive and procedural changes to the traditional judicial process. These changes support those seeking environmental justice who otherwise under established procedures would be unable to access the court. Substantive changes not only included the right to environment as a part of right to life[10] but also the derivative application of principles of international environmental law and strict compliance with regulations and standards.[11] Associated procedural expansion provided a platform for the implementation of these substantive rights. It included a broader understanding of locus standi (representative and citizen standing),[12] interpreting letters written to the court as petitions, appointing fact-

[9] Ibid 580-581

[10] *Delhi Jal Board v National Campaign for Dignity and Rights of Sewerage and Allied Workers* (2011) 8 SCC 574; *M C Mehta v Kamal Nath* (2000) 6 SCC 213; *State of Uttranchal v Balwant Singh Chaufal* (2010) 3 SCC 40

[11] The principles include intergenerational equity, precautionary and polluter pays principles, sustainable development. See *Deepak Nitrate v State of Gujarat* (2004) 6 SCC 402; *A.P. Pollution Control Board v Nayudu I* (1999) 2 SCC 718; *Vellore Citizen Welfare Forum v Union of India* AIR 1996 SC 2715

[12] Representative standing allows any member of the public, acting bona fide, to advance claims against violations of human rights of victims who because of their poverty, disability or socially or economically disadvantaged position could not approach the Court for judicial

finding commissions and implementing directions as continuing mandamus.[13] Thus, the Supreme Court endorsed the ratio that the right to a clean, safe, hygienic, decent, pollution free and wholesome environment is a legitimate expectation flowing from Article 21.[14]

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enforcement of their fundamental rights. NGOs and environmental activists working on behalf of poor and tribal people have entered the courts through the exercise of this procedure. The citizen standing provides a platform to seek redress for a public grievance; this affects society rather than an individual grievance. See generally *Indian Council for Enviro- Legal Action v Union of India* (1996) 3 SCC 21; *In re Judges Transfer Case* AIR 1982 SC 149; *Almrita Patel v Union of India* Writ Petition No. 888 of 1996; *M C Mehta v Union of India* AIR 1997 SC 734. These types of actions can be compared and contrasted with the 'actio popularis' provisions discussed by Alexandra Aragao in chapter 11.

[13] G. N. Gill 'Human rights and the environment in India: access through public interest litigation' (2012) 14 Environmental LR 203-204; M. G. Faure and A. V. Raja Effectiveness of environmental public interest litigation in India: determining the key variable' (2010) 21 Fordham Environmental LR 225; L. Rajamani, 'Public interest litigation in India: exploring issues of access, participation, equity, effectiveness and sustainability' (2007) 19(3) Journal of Environmental Law 293; G. Sahu, 'Implications of Indian Supreme Courts' innovation for environmental jurisprudence' (2008) 4(1) Law, Environmental and Development Journal 375; S. Divan and A. Rosencranz, *Environmental Law and Policy in India* (OUP 2001) 133; J. Razzaque, *Public Interest Environmental Litigation in India, Pakistan, and Bangladesh* (Kluwer 2004)

[14] *Hindustan Zinc Limited v Rajasthan Electricity* (2015) 12 SCC611; *Occupational Health and Safety Association v Union of India* (2014) 3 SCC 547; *M.K. Balakrishnan (1) v Union of India* (2009) 5 SCC 507; *T.N. Godavaraman Thirumulpad (87) v Union of India* (2006) 1

Further, Article 48A, a directive principle of state policy, mandates the state to protect and improve the environment and safeguard forests and wildlife. The policy prescription has assumed the legal status of imposing an obligation not only on government but also on courts to protect the environment.[15] Article 51A (g) imposes a fundamental duty on every citizen to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures. The social obligation under Article 51A(g) has broadened the meaning of 'citizen' to permit public- spirited citizens, interested institutions and NGOs to file and advance environmental PILs to protect ecology and the environment.[16] In addition, Article 47 makes improvement of public health a primary duty of the State to fulfil its Constitutional obligations under Article 21.[17] None of this can be achieved without controlling environmental pollution and preserving the environment whilst recognising that materialistic resources are limited and claimants are many.[18]

Thus, the judicial lexicon of interpretation preserved the link between life and environment and successfully placed the right to life and human dignity within environmental discourse.

SCC 1; *M.C. Mehta v Union of India* (2004) 6 SCC 588; *Hinch Lal Tiwari v Kamala Devi* (2001) 6 SCC 496; *Subhash Kumar v State of Bihar* (1991) 1 SCC 598

[15] *M.C. Mehta v Kamal Nath* (1998) 9 SCC 589; *Intellectual Forum v State of Himachal Pradesh* (2006) 3 SCC 549

[16] *Centre for Environmental Law v Union of India* (2013) SCC Online SC 345; *M.C. Mehta v Union of India* (2004) 12 SCC 118

[17] *Vincet Panikurlangara v Union of India (1987) 2 SCC 165*; *S. Jagannath v Union of India* (1997) 2 SCC 87

[18] *Javed v State of Haryana* AIR 2003 SC 3057; *Unnikrishnan, J P vs. State of A.P* (1993) 1 SCC 645

The ‘collaborative approach, procedural flexibility, judicially supervised interim orders and forward- looking relief ’[19] by and large received strong public support and acquired social legitimacy. It is a ‘testament to Indian democracy’[20] in recognising and addressing popular distrust of government and its inaction.

However, environmental PIL is not without critics. Concerns such as the rapidly increasing number of petitions, expensive and delayed disposal of petitions, complex technical and scientific issues, inconsistent approaches by the courts based upon individual judicial preferences, unrealistic directions and the issue of creeping jurisdiction created doubts about the effectiveness of PIL in environmental matters. It has been suggested that the court is guilty of populism as well as adventurism, thereby in violation of the doctrine of separation of powers.[21] The court, however, has denied any such usurpation. In its pronouncements, it

[19] Rajamani (n 13)

[20] Ibid 12

[21] V. Gauri, ‘Public Interest Litigation in India: Overreaching or Underachieving?’ (2009) Number 5109 Policy Research Working Paper, The World Bank 4; S. Dam, ‘Law- making beyond lawmakers: understanding the little right and the great wrong (analysing the legitimacy of the nature of judicial law- making in India’s constitutional dynamic)’ (2005) 13 Tulane Journal of International and Comparative Law 109; B. N. Srikrishna, ‘Judicial activism – judges as social engineers: skinning a cat’ (2005) 8 Supreme Court Cases Journal 3; A. H. Desai & S. Muralidhar, S. ‘Public Interest Litigation: Potential and Problems’ in *Supreme but not Infallible: Essays in Honour of the Supreme Court of India,* edited by B. N. Kirpal, A. H. Desai, G. Subramanium, R. Dhavan & R. Ramachandran (OUP 2000); U. Baxi, ‘How not to judge the judges: notes towards evaluation of the judicial role’ (1983) 25 Journal of the Indian Law Institute 211

has justified its actions either under a statutory provision or as an aspect of its inherent power.[22]

Within this context, the foundations for an environmental court were laid by the Supreme Court seeking an informed judicial forum that advances a distinctively green jurisprudence.[23] Accordingly, the Indian Parliament passed the National Green Tribunal Act in June 2010.[24] The NGT was established as a specialised environmental court providing effective and expeditious disposal of cases relating to environmental protection, conservation of forests and other natural resources, including enforcement of environmental legal rights, giving relief and compensation for damages to persons and property, and for matters connected or incidental.

[22] Sahu (n 13) 391; Also, the approach of the Indian courts can be compared and contrasted with those of other jurisdictions. See for example chapter 13 by Nathan Cooper relating to South Africa.

[23] The Law Commission of India was influenced by decisions of the Supreme Court of India that in dicta advocated the establishment of environment courts. The judgments in *A.P. Pollution Control Board vs. M.V. Nayudu* 1999(2) SCC 718 and 2001(2) SCC 62, *M.C. Mehta vs. Union of India* AIR 1987 SC 965, and the *Indian Council for Enviro-Legal Action vs. Union of India* 1996(3) SCC 212 recommended the need for establishing environmental courts which would have the benefit of expert advice from environmental scientists and technically qualified persons, as part of the judicial process

[24] The Gazette of India Extraordinary (No. 19 of 2010). The NGT was established on 18 October 2010 and became operational on 5 May 2011 with New Delhi as the principal bench and four regional benches in Bhopal, Chennai, Pune and Kolkata

Any 'aggrieved person' can seek relief from the Tribunal.[25] Following the dicta of the Supreme Court the NGT recognised the right to environment as a part of the right to life in *M/S Sterlite Industries Ltd v Tamil Nadu Pollution Control Board*[26] stated:

> [a]rticle 21 of the Constitution of India . . . is interpreted to include in the right to life the right to a clean and decent environment. It is in the form of right to protect the environment, as by protecting environment alone can we provide a decent and clean environment to the citizenry. The most vital necessities, namely air, water and soil having regard to the right to life under Article 21 cannot be permitted to be misused or polluted to reduce the quality of life of others. Risk of harm to the environment or to human health is to be decided in public interest.[27]

3. The Relationship of Environmental Standards within Environmental Rights

3.1 Regulatory Framework

A clean and safe environment can enhance the quality of life. It reduces mortality and morbidity, promotes healthier lifestyles and improves the lives of women, children and the elderly. It is a social good. According to a 2016 UNEP Report, 'investing in a healthy environment is investing in the health and well-being of current and future generations…

[25] An 'aggrieved person' has been given a liberal interpretation to include any person whether he is a resident of that area or not whether he is aggrieved and/or injured or not. See section 18(2) NGT Act 2010 and cases- *Amit Maru v MoEF* (Judgment 1 October 2014), *Goa Foundation v Union of India* (Judgment 18 July 2013)

[26] Judgment 8 August 2013; also see *Sher Singh v State of Himachal Pradesh* Judgment 4 February 2014

[27] Ibid para 113

Investments in preserving, improving or restoring environmental quality can bring out positive interactions and be catalytic, avoiding contradictions among sector strategies and delivering multiple benefits across all goals for enhanced well-being and quality of life.'[28]

Environmental standards are legal limits placed to regulate the concentration of pollutants that can be released into the environment without causing harm to human health and the environment. They constitute a combination of science (measuring risk) and policy (judging safety).[29] The science provides verifiable scientific evidence of 'substances, its exposure and

[28] United Nations Environment Programme Thematic Report, *Healthy Environment, Healthy People*, Ministerial Policy Review Second session of the United Nations Environment Assembly, Nairobi, (23–27 May 2016) 14

[29] W.W. Lowrance, *Of Acceptable Risk: Science and the Determination of Safety*, (William Kaufmann, Inc., 1976). Lowrance states, 'Determining safety, then, involves two extremely different kinds of activities … Measuring risk- measuring the probability and severity of harm-is an empirical, scientific activity; Judging safety-judging the acceptability of risks-is a normative, political activity.' (75-76). Also see the US National Research Council of the National Academy of Sciences (NAS/NRC) Report (*Red Book* 1983) titled 'Risk Assessment in the Federal Government: Managing the Process'. According to the *Red Book*, the standard setting exercise involves two aspects- risk assessment ('the characterization of the potential adverse health effects of human exposures to environmental hazards' 18) based on scientific evidence and analysis; and risk management ('an agency decision- making process that entails consideration of political, social, economic, and engineering information with risk-related information to develop, analyse, and compare regulatory options and to select the appropriate regulatory response to a potential chronic health hazard' 18-19) based on value judgments

likely effects on public health, risk, exposure and damage to the environment.'[30] Policy includes normative prescriptions that require balancing of 'consideration of society's attitude to risk, achievability, costs and benefits to the environment and society, economic growth and wider issues such as sustainability.'[31]

The Indian regulatory paradigm provides a comprehensive framework of laws, rules and standards and a developed institutional structure. In India, the preferred approach of the regulators involves command and control measures for controlling pollution despite the increased recognition for the use of economic and fiscal policy instruments for the control of pollution since 1990.[32]

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[30] See SNIFFER, *Environmental Legislation and Human Health- Guidance for Assessing Risk*, (2007) 7 https://www.sepa.org.uk/media/28984/assessment-of-environmental-legislative-and-associated-guidance-requirements-for-protection-of-human-health.pdf accessed on 15 September 2017

[31]Ibid; see also C. Coglianese and G.E. Marchant, 'Shifting Sands: The Limits of Science in Setting Risk Standards' (2004) 152 (4) University of Pennsylvania Law Review 1255-1360

[32] The research suggests that the use of fiscal incentives (including tax concessions, pollution taxes or marketable pollution permits) has been rather limited and there appear no serious attempts in India to use the same. The natural resource management is carried out through allocations from central (for example, programmes of the Ministry of Environment and Forests and the Ministry of Agriculture) and state budgets. See, D. Chakraborty and K. Mukhoopadhyay, *Water Pollution and Abatement Policy in India: A Study from an Economic Perspective* (Springer 2014) 144-145; M N Murty and Surender Kumar, 'Water Pollution in India: An Economic Appraisal' *India Infrastructure Report 2011 Water: Policy and*

The creation of environmental standards is but the first step, thereafter comes the process of monitoring, inspection, compliance and enforcement. The 2006 Indian National Environmental Policy[33] acknowledges that the development of environmental standards cannot be universal. It can be argued countries should set standards in terms of their national priorities, policy objectives, and resources. The environmental standards in India refer both to ambient standards[34] as well as emission standards.[35] The framework of laws is regularly

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Performance for Sustainable Development (2011) 290-293; S. Kumar and S. Managi, *The Economics of Sustainable Development: The Case of India* Springer (2009) 45

[33] http://www.moef.nic.in/public-information/policy-statements accessed on 18 August 2017

[34] Ibid 43-44. The ambient standards are the acceptable levels of specified environmental quality parameters at different categories of locations (residential, industrial, environmentally sensitive zones and others). Specific considerations for setting ambient standards in each category of location include the reductions in potential aggregate health risks (morbidity and mortality combined in a single measure) to the exposed population; the risk to sensitive, valuable ecosystems and manmade assets; and the likely societal costs, of achieving the proposed ambient standard

[35] Ibid. Emission standards are the permissible levels of discharges of specified waste streams by different classes of activities. Emissions standards for each class of activity need to be set based on general availability of the required technologies, the feasibility of achieving the applicable environmental quality standards at the location (specific or category) concerned with the proposed emissions standards, and the likely unit costs of meeting the proposed standard. The MoEF&CC provides minimum national standards for emissions to air and water for over 100 industries/activities ranging from high emitting industries to localised

revisited to determine if standards are furthering national environmental policy. Normally it is the shared responsibility of the regulatory authorities- Ministry of Environment, Forest and Climate Change (MoEF&CC), Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCB)- to oversee the development and implementation of standards. The MoEF&CC is the nodal agency at the federal level responsible for adopting and publishing the ambient quality and minimum national emission standards. These national standards are drafted by the CPCB, an apex central body positioned under MoEF&CC, responsible for the prevention, control or abatement of pollution under the many environmental laws.[36] The SPCB at the state level usually adopts the national level minimum standards. However, the

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sources

[36] For example, the development of emission standards for industrial sectors is set out under the Air (Prevention and Control of Pollution) Act, 1981, and further built upon in the Environment (Protection) Act, 1986. Currently, the Peer and Core Group Committee (P&CGC) is an expert body within the CPCB playing a key role in the setting of emission standards. The standards recommended by the P&CGC are then considered by the MOEFCC and the Environment Minister. If the Environment Minister is content, the standards are placed on the MOEFCC's website for public consultation (30-60 days). The responses from stakeholders (including industry, academia, NGOs) are taken into consideration by the MOEFCC Expert Committee. Once approved and final, the standards are published in the in the Gazette of India and CPCB website. For a detailed discussion, see *A Review of the Process of Setting Industry-Specific Emission Standards in India* (2016) http://shaktifoundation.in/report/review-process-setting-industry-specific-emission-standards-india/ accessed on 12 December 2017

SPCB has the authority to develop, set and apply location-specific stringent standards.[37] The SPCB relies on the CPCB's 'Guidelines for Development of Location Specific Stringent Standards' document to ensure sustainability of the required environmental quality of that location.[38] The guidance document states that a review of best available technologies (BAT) in the world will facilitate the maximum reduction in pollution achievable at the tail end. Often the availability and cost of such technologies may be prohibitive but BAT in the Indian scenario may be interpreted as the best demonstrated technology elsewhere and practicable. This is helpful for India to align itself with current international best practice such as World Health Organisation (WHO) Guidelines, US Environmental Protection Agency (USEPA) and EU limits and practices to protect life, public health and environment.[39]

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[37] For example, the section 17(1)(g) of the Air (Prevention and Control of Pollution) Act, 1981: "To lay down, in consultation with the Central Board and having regard to the standards for the quality of air laid down by the Central Board, standards for emission of air pollutants into the atmosphere from industrial plants and automobiles or for the discharge of any air pollutant into the atmosphere from any other source whatsoever not being a ship or an aircraft: provided that different standards for emission may be laid down under this clause for different industrial plants having regard to the quantity and composition of emission of air pollutants into the atmosphere from such industrial plants."

[38] PROBES/127/2008-2009 http://cpcb.nic.in/Publications_Dtls.php?msgid=2 accessed on 10 December 2017

[39] For example, WHO *Air Quality Guidelines for particulate matter, ozone, nitrogen dioxide and sulphur dioxide: Global Update* (2005); http://ec.europa.eu/environment/air/quality/standards.htm accessed on 10 July 2017; USEPA National Primary Water Drinking Standard (EPA 816 F-02-13 July 2002); National Emission

For example, the ambient air quality standards include initiatives developed in consonance with global best practice and are in keeping with the latest advancements in technology and research based upon uniform conformity of standards in both residential and industrial areas. The ambient air quality standards set by the Central Pollution Control Board (CPCB) provide for maximum pollutant loads in the air and guide regulators on the environmental quality that ought to be maintained in the atmosphere for a healthy living and safe environment.[40] India's Air Quality Index (AQI) launched in 2015 for 10 cities[41] monitors the ambient concentration values of air pollutants and their likely health impacts (known as health breakpoints). Air Quality sub-index and health breakpoints have evolved for eight pollutants (PM10, PM2.5, NO2, SO2, CO, O3, NH3, and Pb) for which short-term (up-to 24-hours) National Ambient

Ceilings Directive (Directive 2001/81/EC of the European Parliament and the Council on National Emission Ceilings for certain Pollutants)

[40] There are 12 critical pollutants (PM10, PM2.5, NO2, SO2, CO, O3, NH3, Pb, Ni, As, Benzo(a) pyrene, and Benzene) whose maximum permissible concentration limit is prescribed to be uniformly applied across India. http://www.cpcb.nic.in/National_Ambient_Air_Quality_Standards.php accessed on 18 April 2017

[41] Delhi, Agra, Kanpur, Lucknow, *V*aranasi, Faridabad, Ahmedabad, Chennai, Bangalore and Hyderabad

Air Quality standards are prescribed.[42] The setting of AQI is a welcome initiative to inform people about daily air quality and health advisories.[43]

Noise is a non-visible pollutant contaminating the air with high decibel intensity.[44] Realising the need to control and regulate noise levels, standards have been prescribed for ambient air, based on area classification, construction work, loudspeakers and firecrackers.[45] The WHO guidelines for community noise provided the lead and direction regarding noise standards and regulations.[46]

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[42] http://safar.tropmet.res.in/index.php?menu_id=1 ; http://aqicn.org/map/india/ accessed on 14 May 2017

[43] The Centre for Science and Environment, a public interest and research advocacy organisation welcomed the launch and stated 'it is cautioning them about possible health consequences. This can help build public awareness as well as public support for hard decisions needed to get cleaner air.' http://www.dnaindia.com/india/report-india-s-first-air-quality-index-launched-will-monitor-pollution-levels-across-country-2075189 accessed on 12 April 2017

[44] Section 2(a) of the Air (Prevention and Control of Pollution) Act 1981 and section 2(b) of the Environment (Protection) Act 1986

[45] The Noise Pollution (Regulation and Control) Rules 2000; also see http://www.cpcb.nic.in/Noise_Standards.php accessed on 23 April 2017

[46] B. B. Lindvall, T, Schwela, *World Health Organization: Cluster of Sustainable Development and Healthy Environment*, Department for Protection of the Human Environment, Occupational and Environment Health (Geneva 1999). Guidelines for Community Noise and the European Environmental Noise Directive 2002/49/EC http://ec.europa.eu/environment/noise/directive_en.htm accessed on 10 October 2017

In the automotive sector, emission standards since 2000 aim to regulate the output of air pollutants from internal combustion engine equipment, including motor vehicles and include fuel specifications details.[47] These are based on the European Union regulatory pathway. Nationwide implementation of BS IV (equivalent to Euro IV exhaust emission norms) standards for new vehicles came into effect on 1st April 2017 followed by BS VI (equivalent to the present Euro VI norms) emission standards for all major on-road vehicle categories in India from 1st April 2020.[48]

Similarly, the provision and maintenance of clean drinking water is vital to people's health, communities and the economy. The 2010 United Nations General Assembly Resolution explicitly recognised the human right to water and sanitation and acknowledged the right to safe and clean drinking water and sanitation as a human right essential for the full enjoyment of life and all human rights.[49] The Bureau of Indian Standards (BIS)[50] has specified standards

[47] Fuel types include diesel, gasoline, and hydrogen

[48] http://economictimes.indiatimes.com/news/economy/policy/euro-vi-fuel-to-be-in-metros-before-2020-nitin-gadkari/articleshow/51076348.cms ; http://www.theicct.org/sites/default/files/publications/India%20BS%20VI%20Policy%20Update%20vF.pdf accessed on 10 May 2017

[49]UN General Assembly Resolution 64/292. The human right to water and sanitation A/RES/64/292 ,28 July 2010; also see Comment Number 15 Right to Water by the Committee on Economic, Social and Cultural Rights 2002; see chapter 7 by Owen McIntyre which specifically addresses the right to water.

[50] BIS is a national standard body for the harmonious development of activities of standardization, marking and quality certification of goods http://www.bis.org.in/bis_overview.asp accessed on 20 May 2017

for safe drinking water for human consumption and cooking purposes. It includes water supplied by pipes or any other means for human consumption by any supplier. The standard prescribes desirable and permissible limits, test methods and sampling procedure for ascertaining the suitability of water for drinking purposes. Water is categorised as unfit for human consumption if it is bacteriologically, virologically or biologically contaminated. Similarly, if the presence of organoleptic and physical characteristics, undesirable chemical and toxic compounds, radioactive substances, pesticide residues are beyond the permissible and desirable limit, it makes water unfit for drinking purposes.[51] The standards have been formulated taking into consideration the EU Directives relating to the quality of water intended for human consumption (80/778/EEC)[52] and Council Directive 98/83/EC, the USEPA national primary water drinking standard (EPA 816 F-02-13 July 2002), and WHO Guidelines for Drinking Water Quality (second edition) and supporting information.[53]

[51] Ibid

[52] Repealed by Directive 98/83/EC

[53] Additionally, to restore and maintain the wholesomeness of water bodies and ensure water quality monitoring, guidelines have been framed for surface and ground water quality status. Ground water is an essential and vital component of the life support system. The ground water resources are utilized for drinking, irrigation and industrial purposes. The Uniform Protocol on Water Quality Monitoring Order 2005 and Guidelines for Water Quality Management (http://wqaa.gov.in/Content/uniform_wq_monitoring.aspx) helps in determination of natural freshwater qualities, determination of long term trends in the levels of critical water quality indicators in freshwater resources and determination of the fluxes of organic matter, suspended solids, nutrients, toxic chemicals and other pollutants. The CPCB follows the United Nations Global Environmental Monitoring System (GEMS)

The process of developing environmental standards at global, regional and national levels is complex and results differ between countries and regions, with standards derived, expressed, monitored, and implemented differently. However, the pervasive use of 'legal transplants'[54] in a globalized world helps improve the content and design of the national environmental laws of the receiving nations. This is typically helpful for legal systems where environmental law is at an embryonic stage or is slow to respond to environmental crises. Prestige, cost-saving, international harmonisation and modernisation are all important motivations for relying on legal transplants to develop environmental law and governance.[55] The complex

(http://web.unep.org/gemswater/who-we-are/overview). The MoEF&CC and three major central institutions- Central Water Commission, Central Ground Water Board and Central Ground Water Authority- are responsible for ground water management

[54] The academic discourse on legal transplantation reveals fundamental differences over transplant existence and its feasibility. See A. Watson, *Legal Transplant*, (University of Georgia Press, 1993); P. Legrand, The Impossibility of 'Legal Transplants', (1997) 4 Maastricht Journal of European and Comparative Law 111; O. Kahn-Freund, On Uses and Misuses of Comparative Law, (1974) 37 Modern Law Review 1; E. Orucu, 'Family Trees for Legal Systems: Towards a Contemporary Approach' in M. V. Hoecke, (ed.) *Epistemology and Methodology of Comparative Law.* (Hart 2004) 359-375; J. M. Smits, 'A European Private Law as a Mixed Legal System, (1998) 5 Maastricht Journal of European and Comparative Law 328

[55] Alan Watson, `Aspects of Reception of Law'(1996) 44 *American Journal of Comparative Law* 335; M. Graziadei, `Transplants and Receptions', in J. Jackson, M. Langer & P. Tillers, *Crime, Procedure and Evidence in a Comparative and International Context: Essays in*

and uncertain risks with shared environmental externalities make it desirable for nations to import good practice rules or principles into their legal system. Drawing on the laws of the shared ecological system helps in addressing environmental challenges and enhances the ability to tailor mitigation and adaptation actions at the national level.[56]

India has benefitted through legal transplants by developing environmental standards that otherwise would have been challenging and slow to activate due to under-developed coordination and synergies between existing regulatory institutions, its processes including human and technical capacity constraints. However, it does not imply that the legal transplants have been a 'copy-paste',[57] 'cross-pollination'[58] or a simple 'mimicry'[59] exercise. The setting of standards is based upon the relative experience of other countries and being successful 'can satisfy that demand and the authority of a new law is less likely to be

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Honour of Professor Damaska (2008 Hart) 458; J. Jupp, 'Legal Transplants as tools for post-conflict criminal law reform: justification and evaluation' (2014) (3)1 Cambridge Journal of International and Comparative Law 389-391

[56] L. Kotze and C. Soyapi, 'Transnational environmental law: the birth of a contemporary analytical perspective', in D. Fisher, *Research Handbook on Fundamental Concepts of Environmental Law* (Edward Elgar 2016), p.95; J. B. Wiener, 'Something borrowed for something blue: legal transplants and evolution of global environmental law' (2000/2001) 27 Ecology Law Quarterly 1295–1372; L. J. Kotzé, *Global Environmental Governance* (Edward Elgar 2012) 282

[57] Ibid Kotze and Soyapi 94

[58] Ibid

[59] Shaffer, Gregory and Bodansky, Daniel, 'Transnationalism, Unilateralism, and International Law' (2011) 1(1) Transnational Environmental Law 33

questioned if it has been borrowed from a foreign country where it has been successfully applied.'[60] However, successful legal transplantation is subject to genuine technical differences with respect to different aspects of environment (air, water or noise) or different receptors (humans, flora or fauna). Local and national parameters such as pollution levels, empirical data and epidemiological studies relating to risk to health or environment, availability of pollution control technology and cleaner technology, geographical scope, technical methodology, legal context and nature of socio-economic assessments are critical parts of the environmental standard setting processes.[61] It is an exercise based on approximation and not absolute targets.[62] Thus, a prior application of an evaluative local technical parameter test is fundamental to determine the prospect of its success or failure from the problem formulation stage to its execution. In-fact, it is not the 'process' but the 'value' of environmental standard that assumes priority provided it emerges from a 'trusted regime that is clear and auditable and capable of achieving its objectives. The more positive the projected outcomes of the law relative to these criteria, the greater the justification for developing it by legal transplant.'[63]

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[60] Jupp (n 55) 389

[61] A. Farmer, R. Lee, S. Loutseti, K. Stanley, J. Warinton and P. Whitehouse, 'Setting environmental standards within a socioeconomic context' in M. Crane, P. Matthiessen, D.S. Maycock, G. Merrington and P. Whitehouse (eds.) *Derivation and Use of Environmental Quality and Human Health Standards for Chemical Substances in Water and Soil* (CRC Press 2009) 1, 5-29

[62] A. Agarwal, *Slow Murder: The Deadly Story of Vehicular Pollution in India* (Centre for Science and Environment 1996) 51

[63] Jupp (n 55) 406

The setting of India's standards is moderately stringent compared with international practices or the European regulatory framework. For instance, the formulation and implementation of progressive automotive emission standards in India have generally lagged behind equivalent EU standards by about 5 years in major cities and 10 years nationwide due to local contextual and technical concerns.[64] A 2016 study[65] reviewed the emission standards development process for three key industrial sectors in India (thermal power, iron and steel and brick kiln industries) and stated 'it is not clear, at least for these sectors, if international standards were considered; at least they do not appear to have been used as a benchmark for best practice in most instances.'[66]

The effective state implementation of environmental standards also remains disappointingly low. For instance, in 2015 an environmental health research study found that about 55 percent of the population (660 million Indians) lived in areas where the fine particulate matter air pollutant (PM 2.5) exceeded the national standard. Nearly half of these people resided in areas where pollution levels were more than twice the standard. [67] There are factors that contribute to the implementation gap and poor environmental governance. These include inadequate information and understanding of assessment of risks and consideration of risk

[64] The International Council on Clean Transportation, *India Bharat Stage VI Emission Standards* (ICCT Policy Update 2 April 2016).

[65] Shakti Foundation (n 36)

[66] Ibid 23

[67] R. Pande, R. Rosenbaum and K. Rowe, 'Closing India's Implementation Gap on Pollution Control' *Fair Observer* (24 August 2015) https://www.fairobserver.com/region/central_south_asia/closing-indias-implementation-gap-on-pollution-control-79201/ accessed 10 December 2017

management alternatives, insufficient coordination between the CPCB and SPCBs, slack performance of inadequately funded statutory bodies and enforcement agencies to enforce comprehensive standard compliance, multi-layered corruption, political interference and a lack of will to tackle ensconced industrial and commercial interests, significant human and technical capacity constraints, limited public participation and absence of regulatory powers to impose fine or penalties.[68] A damning report commissioned by the MoEF&CC[69] condemns the regulatory agencies dealing with environmental matters by stating:

> The state – arbitrary, opaque, suspiciously tardy or in-express-mode at different times, along with insensitivity – has failed to perform… the administrative machineries in the Government in the domain of Environment & Forests at all the levels, authorized to administer by Parliament's statutory mandate, appear to have abdicated their

[68] Shripad Dharmadhikary, 'Setting Environmental Standards: Comparing Processes in Thermal Power Plants in India, US, and EU', *Economic and Political Weekly* (13 May 2017); South Asian Human Rights Documentation Centre (2008) *Human Rights and Humanitarian Law: Developments in Indian and International Law* (OUP 2008) 423 ; OECD Report 2006 'Environmental Compliance and Enforcement in India: Rapid Assessment' https://www.oecd.org/env/outreach/37838061.pdf accessed on 18 January 2017; S Divan and A Rosencranz, *Environmental Law and Policy in India* (Oxford, Oxford University Press 2001) 2, 3

[69] High Level Committee on Forest and Environment Related Laws Report (MoEF&CC) (2014) http://envfor.nic.in/sites/default/files/press- releases/Final_Report_of_HLC.pdf accessed 12 June 2016

> responsibilities… the legislations are weak, monitoring is weaker, and enforcement is weakest…the institutional failures include lack of enforcement, flawed regulatory regime, poor management of resources, inadequate use of technology; absence of a credible, effective enforcement machinery; governance constraints in management; policy gaps; disincentives to environmental conservation, and so on.[70]

The recognition of a right to an environment under Article 21 does not necessarily result in its enforceability and execution.[71] According to the 2016 WHO Urban Ambient Air Pollution database[72], India has 16 of the world's 30 most- polluted cities. The levels of ultra- fine particles of less than 2.5 microns (PM2.5s) – which can cause fatal damage to heart and lungs – are highest in India. In relation to water, India has the highest number of people globally without safe water. Nearly 76 million people have no access to a safe water supply. Approximately 140,000 Indian children die annually from diarrhoea.[73] A report by the

[70] Ibid 8, 22

[71] A. Kiss and D. Shelton, *International Environmental Law*, (UNEP 2003) 393; L. Rajamani, 'The Increasing Currency and Relevance of Rights-Based Perspectives in the International Negotiations on Climate Change', (2010) 22(3) Journal of Environmental Law 395; D. Korsah- Brown, 'Environment, human rights and mining conflicts in Ghana' in Lyuba Zarsky (ed.), *Human Rights and the Environment* (Earthscan 2002) 81

[72] www.who.int/phe/health_topics/outdoorair/databases/cities/en/ accessed on 21 October 2016

[73] WaterAid, 'Water: at What Cost? The State of the World's Water' (2016) http://www.wateraid.org/news/news/water- at-what- cost-our- latest-report- reveals-the- state-of- the worlds- water 9 accessed 21 December 2016

Comptroller and Auditor General (CAG) of India in its Performance Audit of Water Pollution in India (2011-12)[74] states that 'water pollution has not been adequately addressed in any policy in India, both at the central and the State level…provisions for a generation of resources for prevention of pollution, treatment of polluted water and ecological restoration of polluted water bodies are not adequate… MoEF&CC/CPCB and the States failed to carry out comprehensive identification and quantification of human activities which impact water quality and the different sources which affect water quality. No agency in the country has assessed the risks of polluted water in rivers/lakes/ground water to health and environment.'[75] The position remains unchanged. In 2015, 62 percent of untreated sewage was discharged directly into water bodies.[76] 80 percent of India's surface water is polluted leading to an increasing likelihood of vector borne diseases: cholera, dysentery, jaundice and diarrhoea.[77]

3.2 Judicial Enterprise

The state's failure to effectively address environmental degradation has resulted in the increased public standing of the judiciary because of its innovative efforts to protect health, ecology and the environment. There is increased judicial responsibility to undertake

[74] http://www.environmental-auditing.org/portals/0/auditfiles/india_f_eng_water-pollution-in-india.pdf accessed 26 July 2016

[75] Ibid 7,16 and 28

[76] CPCB Bulletin, 1 (July 2016) 6

[77]S. Dey, '80% of India's surface water may be polluted, report by international body says' The Times of India (28 June 2015) http://timesofindia.indiatimes.com/home/environment/pollution/80-of-Indias-surface-water-may-be-polluted-report-by-international-body-says/articleshow/47848532.cms accessed on 15 August 2016

appropriate action via Article 21 of the Constitution. In *M.C. Mehta v Union of India*[78] the Supreme Court observed:

> [i]f this Court finds that the authorities had not taken action required of them by law and that their inaction is jeopardising the right to life (Article 21) of the citizens of this country or any section thereof, it is the duty of this Court to intervene. If it is found that the respondents [state agencies] are flouting the provisions of law and the directions and orders issued by the lawful authorities, this Court can certainly make appropriate directions to ensure compliance with law and lawful directions made thereunder.[79]

Currently, the NGT plays a major role in developing both environmental jurisprudence and its practical application through the interpretation of Article 21. It has institutionalised the technical content of decision-making involving specialised scientific knowledge and advice through its expert members.[80] A major innovation is the NGT's readiness to use their expertise to translate knowledge from synoptic to specific thereby offering problem solving solutions that replace absent, weak or ineffective environmental standards and regulations.

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[78] (2004) 6 SCC 588; also see *Indian Council for Enviro-Legal Action v Union of India* (1996) 3 SCC 212

[79] Ibid 616

[80] The NGT Act 2010 provides that the technical experts include persons from life sciences, physical sciences, engineering or technology with 15 years' experience in the relevant field or administrative experience, including five years' practical experience in environmental matters in a reputed national- level institution, or central or state government. Interestingly, there is no room for social scientists with appropriate specialisation or familiarity with environment or occupational risk

The underpinning rationale is based on the premise that 'environmental law and policy decisions must be informed by science… if this could be accomplished, the environmental law and policy world could benefit substantially from the ever-growing body of scientific knowledge.'[81] Jassanoff rightly states 'experts are by definition boundary-crossers whose job it is to link scientific knowledge to matters of social significance: they are the diagnosticians of public problems, the explorers of solutions and the providers of remedies… it is the experts who translate the claims… to serve the immediate agenda of policy (decision-making).'[82]

The interface between science and law is particularly visible in the NGT where scientific experts work alongside fellow legally qualified judges as collective environmental decision-makers of homologous standing.[83] The engagement of scientific experts, akin to Peter Hass

[81] M. J. Angelo, 'Harnessing the Power of Science in Environmental Law: Why We Should, Why We Don't, and How We Can', (2008) 86 Texas Law Review 1527 1573

[82] S. Jasanoff, 'Quality control and peer- review in advisory science' in J. Lentsch and P. Weingart, *The Politics of scientific advice: Institutional design for quality assurance*, (CUP 2011) 19 24-25

[83] G. N. Gill, 'Environmental justice in India: The National Green Tribunal and Expert Members' (2016) 5(1) Transnational Environmental Law 175, 181. This chapter does not address the challenging issues within the sociology of knowledge, which include the multiple roles of experts vis-à-vis policy creation and its promotion. The relationship of science and policy has generated a body of lively and disparate opinion and literature beyond the limited scope of this chapter

'epistemic communities'[84], involves them as constructive science scholars in environmental decision-making. Their expertise filters through to improve environmental management via judicious use of scientific knowledge to ensure minimal damage to the environment and protect society's wider interest. The judicial pronouncements of the NGT have on occasions supplanted legislative powers by temporarily occupying the main executive space.

The author was provided in 2014-15 with official research and interview access to all bench members of the NGT. In particularly, she reviewed the working relationship between the judicial and scientific bench members in the five Tribunals.[85] Some of their responses are reproduced below.

According to NGT Expert 1, 'environmental issues are complex. We are dealing with natural systems and future events based upon impacts. In today's world, environmental effects need serious consideration based upon the likely impacts and magnitude. So, if we feel that the activity is injurious to public health and/or environment and violates Article 21, we pass appropriate orders of expanding the scope of rules and regulations by adopting the principle

[84] P. M. Haas, 'Epistemic communities' in D Bodansky, J Brunee and E Hey (eds), *Oxford Handbook of International Environmental Law* (OUP 2007) 791,793. Hass describes distinctive features of 'epistemic communities' as 'networks . . . often transnational – of knowledge- based experts with an authoritative claim to policy relevant knowledge within their domain of expertise. Their members share knowledge about the causation of . . . phenomena . . . and a common set of normative beliefs about what actions will benefit human welfare in such a domain. Members are experts with professional training who enjoy social authority based on their reputation for impartial expertise.'

[85] G. N. Gill, *Environmental Justice in India: The National Green Tribunal* (Earthscan-Routledge 2017) 148- 185

of constructive intuition to give it a wider meaning to attain the primary object and purpose of the Act in question. Such an interpretation would serve the wider public interest in contrast to the private or individual interest.'[86]

Expert 2 stated 'where there are gaps or limitations in the regulations [environmental standards], the NGT interferes and gives directions to the government to incorporate the same. The Tribunal interprets serious and complex environmental harms both as individual and social centric. The larger interest of the society, public health, and protection and preservation of environment needs to be addressed for the present and future generations under Article 21 of the Constitution.'[87]

Expert 3 opined 'normally we go into the details of technical and scientific aspects of the environmental problem and its impact. We also conduct local inspections at the site and examine the prevailing conditions. We discuss the situation with the people inhabiting in the area. For us, it is important to interfere in situations where the law [standards] is outdated and affects the fundamental right of right to environment.'[88]

In a similar vein, judicial members 1 and 3 stated 'we definitely interfere with the policy. The NGT keeps a check on the regulators to ensure that the laws drafted ensure environmental protection and maintain public welfare, health and environment under Article 21. Where the laws are, inadequate or do not address the issues properly, appropriate policy intervention is justifiable.'[89]

[86] Interview 15 July 2014

[87] Interview 14 April 2015

[88] Interview 14 July 2014

[89] Interview 30 March and 8 April 2015

These interview accounts from judicial and scientific members describing their decision-making processes, rationales and anticipated outcomes are illustrated by selected NGT case reports that consider the adequacy and implementation of environmental standards. The cases are divided into two heads- *risk assessment*, and *nature conservation and management*. They identify knowledge and policy gaps reflecting the inter-connection between environmental standards and Article 21.

3.2.1 Risk assessment

Risk assessment involves 'evaluation of scientific information on the hazardous properties of environmental agents and on the extent of human exposure to those agents.'[90] It is a four step process that includes identification of hazard to determine the qualitative nature of the adverse consequence, relationship between levels of exposure and probable adverse consequences, quantification of exposure, and characterizing the risk in probabilistic terms.[91] Risk assessment plays an important role in decision making through the dose-response curve to characterise and quantify risks. The dose-response curve acts as a valuable tool and guides decisions to be made in an informed manner based on risk assessments and associated impacts with the estimated exposure to the pollutants on human health and environment.[92]

For instance, noise pollution is one area where the absence of or weak noise standards and ineffective implementation has resulted in unabated noise levels in urban India. The problem has not been adequately addressed and remedied despite posing a serious threat to the health of people, especially children and the elderly. Depending on its duration and volume, the

[90] Angelo (n. 80) 1526

[91] Ibid 1527

[92] Farmer (n 61) 23 and 24

effects of noise on human health and comfort are divided into four categories, physical effects (hearing defects), physiological effects (increased blood pressure, irregularity of heart rhythms and ulcers) psychological effects (disorders, sleeplessness and going to sleep late, irritability and stress), and finally effects on work performance (reduction of productivity and aural misunderstanding).[93]

In *D. B. Nevatia v State of Maharashtra*[94] the NGT directed the federal government, namely the Ministry of Road Transport and Highways, Government of India, to provide source-specific standards for sirens and multi-tone vehicles within a period of three months from the date of the order for compliance with the ambient air quality standards under the Noise Pollution (Regulation and Control Rules) 2000. The standards were to be notified by the State of Maharashtra's Transport Department and Pollution Control Board within one month of the date of notification from the Ministry of Road Transport and Highways. According to the NGT, 'the controversy before us is pertaining to vehicular noise caused by unrestricted use of sirens and multi-tone horns having un-specified standards, being fitted in the ambulances, government and police vehicles…poses significant noise pollution problems to the residents and violates their right to life. A large number of the public are also exposed to high levels of noise which have adverse impacts on their health and wellbeing and violates their right to a healthy environment, guaranteed under Article 21 of the Indian Constitution.'[95] The standards were issued on 31 July 2014 but were not implemented effectively at the time of registration

[93] Lindvall (n 46)

[94] Judgment 9 January 2013

[95] Ibid para 7

of the vehicles. The NGT in March 2016 directed the adoption of a consultative process to resolve the on-going matter in the larger interest of public.[96]

The federal government, MoEF&CC, drafted reduced threshold noise standards at airports in the wake of the order passed by the NGT in the case of *Indian Spinal Injuries Hospital v Union of India.*[97] The Indian spinal injuries hospital along with the residents near the Delhi international airport expressed concern over aeroplane noise violations and its impact on health. The engine thrust caused anxiety to patients and people living near the airport and resulted in lack of sleep and a distraction to doctors performing surgery in the hospital.

The deteriorating air quality[98] in India's capital Delhi is a threat to the city's inhabitants particularly to infants, children and the elderly. The World Health Organisation in its 2016

[96] S. Modak, 'Setting standards for vehicle horns: NGT issues orders to government authorities' *The Indian Express* (Mumbai 22 February 2016) http://indianexpress.com/article/cities/mumbai/setting-standards-for-vehicle-horns-ngt-issues-order-to-govt-authorities/ accessed 10 June 2016

[97] Judgment 27 January 2016; N.M. Ghanekar, 'Threshold noise levels at airports reduced' *DNA India* (14 October 2016) http://www.dnaindia.com/india/report-threshold-noise-levels-at-airports-reduced-2263843 accessed 17 November 2016

[98] There are seven major contributors of air pollution in Delhi. These are construction activity and carriage of construction material, burning of municipal solid waste and other waste, burning of agriculture residue, vehicular pollution, dust on the roads, industrial and power house emission including fly-ash, and emissions from hot-mix plants and stone crushers. The transport sector contributes nearly 23 percent of the air pollution. It is estimated that 66 percent of the vehicular pollution results from diesel vehicles

report entitled 'Ambient Air Pollution: A Global Assessment of Exposure and Burden of Diseases'[99] stated that with very high levels of particulate matter measuring 10 microns or less, Delhi is among the most polluted cities in the world. In November 2016 in the case of *Vardhman Kaushik v Union of India*[100], the NGT declared Delhi's air pollution as an 'environmental emergency' situation due to the ineffective implementation of the air quality standards by the regulatory authorities. The air quality standards grossly exceeded the limits, the violation being nearly 20 times in excess thus having a serious impact on the public health. For instance, the standard norms for PM10 is 100 µg/m3 and for PM2.5 60 µg/m3. These values were violated to the extent of PM10 as 1690 µg/m3 and PM2.5 as 885 µg/m3 in November 2016. The NGT expressed grave concern over the inability of the regulatory authorities to implement air quality standards and observed:

> The basic and fundamental question that arises for consideration of this Tribunal is whether the state government can provide any justification acceptable scientifically in law as to why the people of Delhi should be exposed to such severe pollution and have endlessly suffered from one disease or the other. The Hon'ble Supreme Court of India decades back had declared that Article 21 of Constitution of India has to be expanded so as to include right to decent and clean environment as a fundamental right…. The State can hardly raise a defence particularly of its inability to enforce

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[99] World Health Organisation, *Ambient air pollution: A global assessment of exposure and burden of disease* (2016) http://who.int/phe/publications/air-pollution-global-assessment/en/ accessed 20 September 2016

[100] Order 10 November 2016

> laws on an environmental front. The State owes a constitutional duty to protect public health and to provide at least clean air for its citizens to breathe. The principle of inter-generational equity does not support any development even if it is carried under the doctrine of sustainable development where the next generation would be exposed to the worst environmental and ecological environment. The children of today have a right to breathe clean air and play in the playground rather than be ordered to be shut down in their respective homes… It appears that to attain the prescribed standards as of now would be a dream difficult to achieve as of today.[101]

Air pollution caused by burning of used tyres in open spaces in an unauthorised and unscientific manner is toxic, mutagenic and hazardous.[102] It affects the environment and human health. The NGT in *Asim Sarode v State of Maharashtra*[103] directed the regulatory authorities to urgently develop regulations and guidelines to ensure environmentally sound disposal practices of the used tyres based on the available toxicological and eco-toxicological risks and associated consequences of an unsafe activity.

[101] Ibid 8, 9, 10

[102] ELaw, *Health impacts of open burning of used (scrap) tires and potential solutions (science memo)* https://www.elaw.org/content/health-impacts-open-burning-used-scrap-tires-and-potential-solutions-science-memo accessed 24 April 2018

[103] Judgment 6 September 2014

Risk assessment thus reviews actions that directly impact on the health of the community and environment and thereby run contrary to Article 21. In *Manoj Misra v Union of India*[104] the Tribunal stated

The health of the public is a matter which ought to find absolute priority in the agenda of proper governance by the State. Right to health is a part of the right to life guaranteed by Article 21 of the Constitution of India. Where the planning processes are left to the government and to the public bodies, it is inherent that overriding considerations of public health and danger to life must be issues to which top priority consideration is bestowed. Where there is a failure in this regard, the courts will have to step in. Nothing can be more fundamental than the issue of public safety and public health.[105]

3.2.2 Nature conservation and management

The recognition and consideration of nature conservation and management is within the NGT's mandate. The Supreme Court has determined that the conservation and protection of nature and inanimate objects by adopting an eco-centric approach is an inextricable part of life.[106] This logic is based on the premise that nature has an impact on human well- being as it

[104] Judgment 13 January 2015

[105] Ibid para 53

[106] In *Intellectual Forum, Tirupathi v State of A.P* AIR 2006 SC 1350 the Supreme Court of India recognised 'all human beings have a fundamental right to a healthy environment commensurate with their well- being ... ensuring that natural resources are conserved and preserved in such a way that present as well as the future generation are aware of them equally.' (para 84)

is the life support system of planet earth. Human life depends on the conservation of the environment including biodiversity, the degradation of which affects the right to life under Article 21. The NGT, in its judgment, *Tribunal on its Own Motion v Secretary of State*[107] recognised this approach by stating

> 'Anthropocentrism is always human interest focussed thinking that non-human has only instrumental value to humans, in other words, humans take precedence and human responsibilities to non-human are based on benefits to humans. Eco-centrism is nature-centred, where humans are part of nature and non-humans have intrinsic value. In other words, human interest does not take automatic precedence and humans have obligations to non-humans independently of human interest. Eco-centrism is, therefore, life-centred, nature-centred where nature includes both humans and non-humans. Article 21 of the Constitution of India protects not only the human rights but also casts an obligation on human beings to protect and preserve a species becoming extinct, conservation and protection of environment is an inseparable part of right to life.'[108]

The following NGT cases identify the appropriateness and feasibility of nature conservation and management approach in environmental law by updating legal standards through scientific knowledge to protect the environment against harmful anthropogenic activities. An

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[107] Judgment 4 April 2014. The NGT followed the Supreme Court rationale in the case of Centre for Environment Law WWF-1 V Union of India (2013) 8 SCC 234

[108] Ibid 256. Also see *Sudeip Shrivastava v State of Chattisgarh* Judgment 24 March 2014; *Charudatt P Koli v M/s Sea Lord Containers* Judgment 18 December 2015

example is a wetland ecosystem. In *Forward Foundation v State of Karnataka* [109] the NGT stated:

> 'Wetlands are amongst the most productive ecosystems on the earth… they are also ecologically sensitive and adaptive systems. "Free" services provided by wetlands are often taken for granted, but they can easily be lost as wetlands are altered or degraded in a watershed… Ecosystem goods provided by the wetlands mainly include: water for irrigation; fisheries; non-timber forest products; water supply; pollutant removal, flood attenuation, groundwater recharge, shoreline protection, wildlife habitat and recreation… Various services provided by wetlands include carbon cycle/ carbon sequestration: swamps, mangroves, peat lands, mires and marshes play an important role in carbon cycle…Wetlands provide… one of the most ecologically and economically important ecosystems on earth.'[110]

In this case, the NGT allowed an application filed by an NGO, the Forward Foundation, interested in the restoration of ecologically sensitive wetland, particularly, in the State of Karnataka. The principal grievance related to commercial projects, including the creation of a special economic zone park, hotels, residential apartments and a mall, that were being developed by the respondents on the wetlands and catchment areas of the water bodies – the Agara and the Bellandur Lakes. The constructions adversely affected the environment, ecology and particularly the water bodies and their biodiversity and impacted on the water supply to the city of Bengaluru [Bangalore], thereby violating Article 21 of the Constitution.

[109] Judgment 7 May 2015

[110] Ibid paras 56-58

The entire ecosystem was exposed to a severe threat of environmental degradation and consequential damage.

Interestingly, the NGT ordered a revised minimum distance from water bodies as a buffer zone thereby creating a standard different from the statutory Wetland Rules 2010. The NGT directed that a distance of 75 metres from the periphery of the water body be maintained as green belt and a buffer zone for all the existing water bodies i.e. lakes and wetlands. This buffer/green zone would be treated as a no construction zone for all intent and purposes including restrictions on any kind of encroachment, poaching, or any permanent construction. According to the NGT, the 50 metres distance prescription under the Wetland Rules 2010 suffered from an inbuilt contradiction, legal infirmity and was without any scientific justification. The NGT stayed the construction of projects, ordered demolition, and imposed heavy penalties.

In a subsequent case, *Anand Arya v Union of India*[111] the NGT Tribunal promoted India's wetland by directing the Central Wetlands Regulatory Authority, responsible for identification and conservation of wetlands, to meet regularly and ensure that wetlands in all states are identified and notified at the earliest possible time.

Again, in *Biodiversity Management Committee v Union of India*[112] the NGT directed the government to formulate guidelines in consultation with the local communities relating to uncertain baseline data about biodiversity resources and traditional knowledge, and establish a benefit sharing formula arising from utilisation of natural resources to people and communities. Plants and other biological resources have been used by traditional

[111] Order 22 July 2016

[112] Judgment 4 May 2016

communities for a variety of purposes particularly in health care, food and in many household utilities. A participatory approach elicits and makes visible diverse local realities, priorities, categories and indicators that contribute towards protecting life, livelihood and culture of the traditional communities and promotes conservation of natural resources.[113]

Thus, the proposed participatory guidelines offer a pathway to the stakeholders to regenerate the degraded forests and biodiversity to which human well-being and life are intimately linked under Article 21. To that extent, employing participatory management can provide feedback to update regulatory efforts as information increases and helps in a better decision-making process through detailed analyses of the management of complex ecosystems.

The review of the NGT decisions shows that environmental protection and nature conservation and management have been given the status of a fundamental right and brought under Article 21 of the Constitution of India. Judgments reflect scientific input and not only respond to the issues between the parties but may also offer policy advice or requirements that have application far beyond the court room door.

4. Environmental Standards: Challenges

Framing regulations with robust environmental standards is crucial to anticipate and address responses and ensure effective implementation. As stated earlier, setting of India's standards is moderately stringent compared with international practices. Issues of techno-economic feasibility of the standards and the availability of required abatement technologies may be prohibitive.[114] Resources (skills and manpower) of pollution control boards involved in the

[113] See also *J. R. Chicham v State of Madhya Pradesh* Judgment 8 May 2014; *Narmada Khand Swabhiman Sewa v State of Madhya Pradesh* Judgment 1 October 2014

[114] Shakti Foundation (n 36)

process are strained thereby impacting on the process of development of environmental standards and ultimately the environmental standards themselves.[115]

Further, the application and enforcement of the environmental standards are limited. The reasons include a lack of enforcement by pollution control boards, a lack of understanding regarding the risks associated with exceeding environmental standards, clarity of process, a lack of suitable expertise and failure to comply with the obligation regarding environmental monitoring.[116] For example, despite ground breaking decisions of the NGT the issue of the implementation of its decisions and orders remains a major challenge. Whilst parties are heard and decisions are made within the court on occasions, the directions of the Tribunal are far reaching and require the active participation and positive responses of numerous third parties. It is at this point that the hostility of potentially affected groups, organisations, corporations, politicians, ministries and agencies results in delay, indifference, refusal or lack of resources. Powerful players seek to frustrate sensitive decisions of the NGT by limiting its reach and impact. In *Vardhman Kaushik v Union of India*[117] the NGT observed:

> '. . . the authorities, departments and the state governments have not even initiated the process for compliance of the (earlier) directions. With the increasing pollutants in the air, life of residents in the NCR[National Capital Region], Delhi is becoming more and more vulnerable to various diseases and the greatest sufferer of these pollutants are young children of today and India's tomorrow. The slackness and casual attitude of the authorities of the state Government is exhibited from the very fact that the air

[115] Ibid

[116] See notes 67 and 68 for further details

[117] Judgment 7 April 2015

> pollution is increasing and has reached to an alarming level which would make it difficult for the people of Delhi even to breathe freely much less fresh air.'[118]

Recent work provides statistical evidence demonstrating a dominant pattern of a tight group of 'repeat players' being plaintiffs regularly bringing actions before the Tribunal against the appropriate regulatory authorities.[119] It identifies the parties to environmental disputes by analysing some 1130 cases decided by the National Green Tribunal between July 2011 and September 2015. The most active plaintiffs were the NGO's, social activists and public-spirited citizens who between them brought 47.2 per cent of all cases. The MoEF&CC was the defendant in 284 cases out of which some 203 cases, 71.5 per cent, were brought by NGO's. Additionally, state governments along with pollution control boards were defendants in 341 cases out of which 135 cases, 39.6 per cent, were brought by NGO's et al. The MoEF&CC's, state governments and pollution control boards frequent appearances as defendants before the NGT suggests a repeated failure on the part of regulatory authorities to undertake their environmental protection statutory duties. The regulatory framework has been unable to deliver due to

> a knee-jerk attitude in governance, flabby decision-making processes, ad hoc and piecemeal environmental governance practices… the lasting impression has remained that the Acts and the appurtenant legal instruments have really served only the purpose of a venal administration, at the Centre and the States, to meet rent-seeking propensity at all levels.[120]

[118] Ibid para 2

[119] Gill (n 85) 194-197

[120] HLC Report (n 69) 8

4. Conclusion

India's population is gargantuan as are its internal problems that reflect poverty, social inequality, geographical size, bureaucratic inefficiency or indifference and endemic corruption. The tripartite relationship of checks and balances between Parliament, the Executive and the Judiciary, entrenched in Western common law constitutionalism and bequeathed to newly independent India in 1947, continues to experience limited success. The cumbersome, multi-party legislature[121] that meets infrequently is linked to executive and 'bureaucratic inactivity and apathy; sometimes excesses that cause the problem and sometimes the problem is caused by the ostrich-like reaction of the executive.'[122] This inefficient and ineffective relationship has disturbed the inherited constitutional balance and placed the judiciary in the position of *primus inter pares* reaching to find environmental solutions within the legal framework.

Judicial space has become the first and ultimate forum to resolve environmental conflicts because of the failure of regulatory agencies. The broad 'representative and citizen standing' in environmental PIL and liberal 'aggrieved party' standing as interpreted by the NGT has promoted a transformative process being polycentric, participatory and democratic to protect and improve the environment and ecology under Article 21 of the Constitution. The constitutional mandate of Articles 48A and 51A(g) establishing a duty of the state and every citizen to protect and improve the environment has promoted dynamism and provided the

[121] 'Democracy in India: The do-nothing Lok Sabha', *The Economist* (Asia section 17 December 2016) 47

[122] *Swaraj Abhiyan v Union of India* (2016) 7 SCC 498 at 510. A strong judgment was delivered by Justice Madan Lokur in this case

opportunity to victims and protectors of environmental degradation to access justice in a participatory manner.

Environmental standards exist in India having either been ‘transplanted’ or developed by the State and its agencies. The pervasive challenge is that of effective monitoring, inspection, compliance and enforcement of these standards. It is at these crucial points involving the active participation of ministries and regulatory agencies that flaws and failures occur. However, India’s experience has fostered a supplementary stream of law and legal regulation emanating from the responsible judiciary, especially the NGT through its imaginative and dynamic interpretation and application of the right to life and environment based on Article 21 of the Constitution.

Thus, the mantle of environmental protection and the creation, promotion and enforcement of standards has fallen upon the judiciary particularly on the NGT. Decisions are increasingly more than simply adjudicatory. The reliance of the judiciary on scientific expertise to assess risk, and nature conservation and management reflects the critical importance of the question of appropriateness of environmental standards and its implications for human health and environmental protection under Article 21. The judicial approach not only promotes outcomes that foster improved standards but also encourages regulatory authorities to involve stakeholders in standard setting processes. These judicial decisions are based on ecological, technological and scientific resource knowledge that either formulates policies or assists regulatory agencies with the implementation of these policies, thereby adopting both a problem-solving and policy creation approach (either mandatory or advisory).

Judicial activism in India is not pejorative: it reflects realism, guardianship, welfare and social responsibility. Former Chief Justice of England and Wales Lord Woolf expressed his appreciation of the proactive approach of Indian judiciary by stating, ‘…court was to perform

its essential role in Indian society, it had no option but adopt the course it did and I congratulate it for the courage it has shown.' [123]

Subsequently, Justice Kirby in his Hamlyn lecture stated that, '…the accretions of power to the judiciary...have come about as a result of failures and inadequacies in law-making by the other branches and departments of the government. Constitutional power hates vacuum. Where it exists, in the form of silence, confusion or uncertainty about the law, it is natural that those affected, despairing of solutions from the other law-making organs of the government, will sometimes approach the judicial branch for what is in effect a new rule. They will seek a new law that responds quickly to their particular problem. In India… judicial activism is not viewed as one of condemnation. So, urgent and numerous are the needs of that society that anything else would be regarded by many-including many judges and lawyers-as an abdication of the final court's essential Constitutional role.'[124]

[123] Justice Michael Kirby, *Judicial Activism: Authority, Principle and Policy in the Judicial Method* (The Hamlyn Lectures Fifty- Fifth Series, Sweet and Maxwell 2004) 39

[124] Ibid 38, 65 and 66