

ARTICLE

Environmental Justice in India: The National Green Tribunal and Expert Members

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Abstract

This article argues that the involvement of technical experts in decision making promotes better environmental results while simultaneously recognizing the uncertainty in science. India's record as a progressive jurisdiction in environmental matters through its proactive judiciary is internationally recognized. The neoteric National Green Tribunal of India (NGT) – officially described as a 'specialised body equipped with necessary expertise to handle environmental disputes involving multi-disciplinary issues' – is a forum which offers greater plurality for environmental justice. The NGT, in exercising wide powers, is staffed by judicial and technical expert members who decide cases in an open forum. The experts are 'central', rather than 'marginal', to the NGT's decision-making process.

This article draws on theoretical insights developed by Lorna Schrefler and Peter Haas to analyze the role of scientific experts as decision makers within the NGT. Unprecedented interview access provides data that grants an insight into the internal decision-making processes of the five benches of the NGT. Reported cases, supported by additional comments of bench members, illustrate the wider policy impact of scientific knowledge and its contribution to the NGT's decision-making process.

Keywords: Environmental decision making, India, National Green Tribunal India, Expert technical members, Knowledge utilization

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1. INTRODUCTION

This article accepts that environmental problems are complex and increasingly transnational in nature. It argues, on the basis of fieldwork data gathered in India, that the involvement of technical experts at the heart of courtroom decision making promotes better environmental results. The importance of experts is recognized in the view that ‘experts define the regime of truth; they tell us what the world looks like, identify and quantify relevant variables, provide statistical measurements and risk analyses, and solve the equations that indicate the path towards increasing the aggregate level of well-being ... Experts define the system’,¹

There is academic literature that defends the involvement of experts on the ground of their contribution to decision making.² Environmental decision making may involve science;³ consequently, scientific expertise can provide appropriate solutions to technical or complicated environmental problems. Effective environmental governance calls for procedural values such as transparency, inclusion, deliberation and participation, which involve the input of experts, while at the same time offering collective and effective problem-solving solutions. These procedural values are perceived as integral to legitimating the processes and the institution seeking to impart environmental justice.

The prototypical expert decision maker plays a fundamental role in advancing the values and goals of institutions, organizations and legislation by offering expert knowledge. This function is widely supported, though it remains unsettled and debated. For instance, the gap between the production and use of expert knowledge has posed concerns about the extent of expert involvement and accountability in the

¹ J. Lawrence, ‘The Structural Logic of Expert Participation in WTO Decision-Making Processes’, in M. Ambrus et al. (eds), *The Role of ‘Experts’ in International and European Decision-Making Processes: Advisors, Decision Makers or Irrelevant Actors?* (Cambridge University Press, 2014), pp. 173–93, at 186.

² Ambrus et al., *ibid.*; K.A. Ericsson et al. (eds), *The Cambridge Handbook of Expertise and Expert Performance* (Cambridge University Press, 2006); A. Kronsell & K. Bäckstrand, ‘Rationalities and Forms of Governance: A Framework for Analysing the Legitimacy of New Modes of Governance’, in K. Bäckstrand et al. (eds), *Environmental Politics and Deliberative Democracy: Examining the Promise of New Modes of Governance* (Edward Elgar, 2010), pp. 28–43, at 38–9; A. Buchanan & R.O. Keohane, ‘The Legitimacy of Global Governance Institutions’ (2006) 20(4) *Ethics and International Affairs*, pp. 405–38; J. Steffek, ‘The Legitimation of International Environmental Governance’ (2003) 9(2) *European Journal of International Relations*, pp. 249–76.

³ In environmental regimes, the use of science and scientific expertise playing a role as problem identifiers and problem solvers is well documented: see, generally, T.S. Kuhn, *The Structure of Scientific Revolution* (University of Chicago Press, 1970); S. Andresen et al. (eds), *Science and Politics in International Environmental Regimes: Between Integrity and Involvement* (Manchester University Press, 2000); A. Gupta et al., ‘Science Networks’, in F. Biermann & P. Pattberg (eds), *Global Environmental Governance Reconsidered* (The MIT Press, 2012), pp. 69–95; G. Shaffer, ‘Risk, Science and Law in the WTO: The Centrality of Institutional Choice’, in Proceedings of the 104th Annual Meeting of the American Society of International Law, 24–27 Mar. 2010, p. 19; R. Feldman, *The Role of Science in Law* (Oxford University Press, 2009); A. Green & T. Epps, ‘The WTO, Science and the Environment: Moving Towards Consistency’ (2007) 10(2) *Journal of International Economic Law*, pp. 285–316, at 302–7.

environmental decision-making process.⁴ Issues including identification and selection of an expert, homogenous or heterogeneous groups of experts, collegial and collaborative decision making, knowledge application and input to policy decisions challenge the legitimization and scientification of environmental decision making through experts and their expertise.

India's record as a progressive jurisdiction in environmental matters through its proactive judiciary is internationally recognized.⁵ The neoteric National Green Tribunal of India (NGT or Tribunal) – officially described as a 'specialised body equipped with necessary expertise to handle environmental disputes involving multi-disciplinary issues'⁶ – is a forum that offers greater plurality for environmental justice. The NGT exercises wide powers and is staffed by judicial and technical expert members who decide cases in an open forum. It avails itself of adversarial, inquisitorial, investigative and collaborative procedures throughout the decision-making process.⁷

This article focuses on the role of experts and their expertise within the NGT, acting as decision makers in environmental disputes. The experts are 'central', rather than 'marginal', to the NGT's normative structure. For the purpose of this article, the terms 'expert' and 'expertise' do not include judicial members but refer specifically to the technical members having a range of specialized scientific knowledge, which includes environmental sciences, environmental studies, environmental engineering, technology, ecology, forestry, plant sciences, soil sciences, zoology and related categories. Experienced scientists, practising ecologists and natural resource managers are considered as experts.⁸ Thus, scientific expertise and its input into the decision-making process is vital for the character, decisions and working practices of the NGT.

Hereafter, the article is divided into six sections. The first (Section 2) presents the methodology, followed by a brief review in Section 3 of the science and its reliability, along with the value of expert testimony. Section 4 offers the theoretical framework encompassing epistemic communities and knowledge utilization. The following section offers an account of the genesis, establishment and statutory powers of the NGT, and Section 6 tests the theoretical framework by applying it to the NGT in the light of fieldwork data. Relevant, illustrative case law is also considered. The concluding section reviews the relationship of the NGT with other powerful environmental bodies and questions the future of the NGT.

⁴ See, e.g., C.H. Weiss, 'The Many Meanings of Research Utilization' (1979) 39(5) *Public Administration Review*, pp. 426–31; E.A. Lindquist, 'What Do Decision Models Tell Us About Information Use?' (1988) 1(2) *Knowledge, Technology and Policy*, pp. 86–111.

⁵ G.L. Peiris, 'Public Interest Litigation in the Indian Subcontinent: Current Dimensions' (1991) 40(1) *International and Comparative Law Quarterly*, pp. 66–90. See also M.R. Anderson, 'Individual Rights to Environmental Protection in India', in A.E. Boyle & M.R. Anderson (eds), *Human Rights Approaches to Environmental Protection* (Oxford University Press, 1998), pp. 1–23.

⁶ See the NGT website at: <http://greentribunal.gov.in>.

⁷ *V.G. Bhungase v. Gangakhed Sugar and Energy Ltd*, NGT Judgment, 20 Dec. 2013.

⁸ M. Drescher et al., 'Towards Rigorous Use of Expert Knowledge in Ecological Research' (2013) 4(7) *Ecosphere*, pp. 1–26, at 2.

2. METHODOLOGY

This article builds upon and examines fieldwork data collected in India in 2014 and 2015. Specifically, it focuses on the involvement of the scientific bench members and their expertise in the decision-making process. I was afforded unique academic access to interview all NGT bench members. The Indian judiciary, working within a common law jurisdiction, remains particularly sensitive about its independence from politics and the integrity of its internal decision-making processes. In the United Kingdom (UK) the judiciary has become more ‘open’ to academic enquiry.⁹ The Chairman of the NGT granted me permission to approach members of the regional benches as well as the principal bench in Delhi. Initial access was organized by the principal registrar in Delhi. Thereafter, regional registrars organized meetings with bench members in Pune, Bhopal, Chennai and Kolkata. The interviews were conducted in chambers during July and August 2014 and March and April 2015. Expert members and judicial members were interviewed. The Chairperson of the NGT was interviewed in Delhi. In total 110 interviews were undertaken. The interviewees included lawyers, litigants and non-governmental organizations (NGOs) with the aim of establishing both internal and external evaluations of the NGT. All interviews were semi-structured, followed the same set of questions, were recorded and subsequently transcribed. Individual permission to use all recorded material was obtained. I also observed cases before the five NGT benches.

My empirical Indian fieldwork (observations, recorded interviews and reported judgments) demonstrates the value of judge-scientists and their role in contributing to the NGT’s decisions through an interdisciplinary approach – an approach that focuses on reaching the best available solution rather than being limited to predetermined traditional legal remedies. Further, the work shows the visible impact of collective decision making between judge-lawyers and judge-scientists in the formulation and implementation of policy development, as is illustrated by the selected NGT judgments reviewed in this article. In India judicial activism is of particular importance as it is a response to the limited effectiveness of both political leadership and administrative authorities in discharging their constitutional and administrative duties.¹⁰

3. QUESTIONABLE SCIENCE AND EXPERT TESTIMONY

The involvement of experts and expert knowledge in policy and decision making commands an important place in academic discourse. Nevertheless, the relationship of science and politics is and remains problematic, and is subject to widespread debate.¹¹

⁹ A. Paterson, *The Law Lords* (Palgrave Macmillan, 1982); A. Paterson, *Final Judgment: The Last Law Lords and the Supreme Court* (Hart, 2013); H. Annison, ‘Interpreting the Politics of the Judiciary: The British Senior Judicial Tradition and the Pre-emptive Turn in Criminal Law’ (2014) 41(3) *Journal of Law and Society*, pp. 339–66.

¹⁰ G.N. Gill, ‘Human Rights and the Environment in India: Access through Public Interest Litigation’ (2012) 14(3) *Environmental Law Review*, pp. 199–217, at 200.

¹¹ See, generally, C. Limoges, ‘Expert Knowledge and Decision-Making in Controversy Contexts’ (1993) 2(4) *Public Understanding in Science*, pp. 417–26; N. Oreskes & E. Conway, *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming*

Sectional interests, including government, industry and commercial capital, may underwrite or promote research to serve their particular interests.¹² Indeed, a simple reliance on science for explanations or for development has had its own pitfalls, as was illustrated by the fatal technical design flaws of Comet passenger planes, the technically debated responses to bovine spongiform encephalopathy (BSE or mad-cow disease), and the Cumbrian sheep farmers' challenges to the responses of the government's scientific advisers to the Chernobyl contamination of their land.¹³ Additionally, science may be captured by politicians, as was experienced in the former USSR by Stalin and his catastrophic farming policy or the government response to the AIDS crisis in South Africa.¹⁴ A consequence is that the objectivity of science is now questionable as policy issues are discussed and resolved. Objection to the neutrality of science is reflected in the view that it is rooted in wider social, political and economic contexts. What is clear is that the research on expert roles is mostly theoretical. While theories are well developed, there is only limited empirical evidence to support these changes and procedures.¹⁵

However, the introduction of scientific determinants, as presented by experts, into legal rationality, as exercised by the judiciary, raises the question of the role and limits of judicial creativity. Should the judiciary be acknowledged as authorized to exercise such expansive powers? If yes, the question arises of whether judges are fit for purpose? Seldom are judges scientifically trained; therefore, they may be ill-informed assessors of the claims of paid or retained scientific experts who enter court offering fact-based evidence on behalf of a party to the case.¹⁶ It has been suggested that inadequately trained judicial 'gatekeepers' lay themselves open to be overwhelmed by

(Bloomsbury, 2010); P. Spruijt et al., 'Roles of Scientists as Policy Advisers on Complex Issues: A Literature Review' (2014) 40 *Environmental Science and Policy*, pp. 16–25.

¹² See, generally, Council for Tobacco Research (US), funded by Philip Morris; L.I. Lesser et al., 'Relationship between Funding Source and Conclusion among Nutrition-Related Scientific Articles' (2007) 4 *Public Library of Science Medicine*, pp. 41–6; M. Maclean, 'The Impact of Socio Legal Studies on Family Justice: From Oxford to Whitehall' (2015) *Journal of Law and Society* (forthcoming); T.O. McGarity, 'Our Science is Sound Science and Their Science is Junk Science: Science Based Strategies for Avoiding Accountability and Responsibility for Risk-Producing Products and Activities' (2004) 52 *Kansas Law Review*, pp. 897–937; H. Collins & R. Evans, *Rethinking Expertise* (The University of Chicago Press, 2007); S. Jasanoff, 'Quality Control and Peer Review in Advisory Science', in J. Lentsch & P. Weingart (eds), *The Politics of Scientific Advice Institutional Design for Quality Assurance* (Cambridge University Press, 2011), pp. 19–35.

¹³ See, e.g., H. Collins, *Are We All Scientific Experts Now?* (Polity, 2014), pp. 4, 40.

¹⁴ *Ibid.*, pp. 41–3.

¹⁵ As early as 1945 this was pointed out by R.K. Merton, 'Role of the Intellectual in Public Bureaucracy' (1945) 23(4) *Social Forces*, pp. 405–15; see also Spruijt et al., n. 11 above, pp. 16–25.

¹⁶ W. Twining, 'Preparing Lawyers for the Twenty First Century' (1992) 3(1) *Legal Education Review*, pp. 1–16, at 14 ('In my experience most lawyers are innumerate and most law students are terrified of figures'); D.L. Faigmann, *Legal Alchemy: The Use and Misuse of Science in the Law* (W.H. Freeman and Co., 1999); *Case concerning Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Judgment, 20 Apr. 2010, *ICJ Reports* (2010), in particular the dissenting and separate opinions of Judges Al-Khasawneh, Simma, Cançado Trindade, Yusuf, and Vinuesa regarding the role of experts. To quote from the joint dissenting opinion of Judges Al-Khasawneh and Simma (*ibid.*, para. 3): 'The Court has had before it a case on international environmental law of an exemplary nature, a 'textbook example', so to speak, of alleged trans-frontier pollution; yet, the Court has approached it in a way that will increase doubts in the international legal community whether it, as an institution, is well placed to tackle complex scientific questions'.

junk science. The common law courtroom is the forum for adversarial advocacy, which sometimes involves the participation of numerous expert witnesses advancing differing and competitive scientific evidence. An outcome can be a battle of scientific opinions where strongly held positions are debated and further tested, deconstructed and challenged.¹⁷ The court may be particularly vulnerable where one financially strong party can advance a parade of scientific experts.¹⁸ The courts are aware of the dangers of unproven science, as explained by Lord Phillips in *Sienkiewicz v. Greif UK Ltd*,¹⁹ in which the court recognized that scientific evidence may have limitations: ‘epidemiological data may not be reliable’ as science is still ignorant ‘of how causation in fact occurs ... There is a real danger that so-called “epidemiological evidence” will carry a false air of authority’.²⁰ A potential consequence is that courtroom truth and legal rationality can be affected or replaced by questionable, biased or ‘purchased’ scientific knowledge.²¹

This article 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 article. Nor does the article consider the relationship or functionality of the expert witness introduced into the courtroom in order to promote the case of a litigant. The article accepts that there may be several, alternative or competing scientifically based solutions to a problem rather than stating there is a solitary solution: ‘the solution’. These may be advanced to the court by retained expert witnesses or scientifically based evidence may be generated within the court by its ‘in house’ scientific experts. Thus there is both ‘flexibility’ and ‘uncertainty’ in science.

This article traces and evaluates the way in which, by an Act of Parliament in India, a symbiotic relationship has been created between legal and scientific experts operating as joint decision makers and adjudicators of environmental conflicts within the context of a nationally functioning tribunal. The courtroom is a place of dispute resolution. It is not a ‘maybe-discussion’ forum where policy is debated or negotiated among interested and sometimes powerful interest groups. The consequence of its statutory establishment and function is that there are always decisions that declare formal winners and losers.

Any potential discord within the courtroom between science and law has been addressed by the NGT through its appointment procedures, its choice of scientific experts, and its public and private decision-making processes. This article considers

¹⁷ See, e.g., S. Bocking, ‘Scientific Expertise and Environmental Politics: Cross-Border Contrasts’, Conference Paper presented at the Canadian Political Science Association, York University, Toronto (Canada), 2006.

¹⁸ P.W. Huber, *Galileo’s Revenge: Junk Science in the Court Room* (Basic Books, 1991).

¹⁹ [2011] 2 AC 229.

²⁰ *Ibid.*, pp. 261, 290.

²¹ S. Jasanoff, *Science at the Bar* (Harvard University Press, 1995); S. Jasanoff, ‘Just Evidence: The Limits of Science in the Legal Process’ (2006) 34(2) *Journal of Law, Medicine & Ethics*, pp. 328–41; S.L. Cooper, ‘The Collision of Law and Science: American Court Responses to Developments in Forensic Science’ (2013) 33(1) *Pace Law Review*, pp. 234–301.

the efforts of the NGT to reach good decisions that involve and reflect ‘good science’ by centralizing scientific experts, as full court members, within the decision-making process, thereby promoting a collective, decision-making, symbiotic, interdisciplinary bench that seeks to harmonize legal norms with scientific knowledge.

4. THEORETICAL FRAMEWORK – EPISTEMIC COMMUNITIES AND KNOWLEDGE UTILIZATION

Political science scholarship offers an analytical tool which can be applied to the NGT in order to unwrap and review the data presented in this article. Thus, there is here a transmigration of theory and its application from one discipline to another social science: political science to law.

The concept of ‘epistemic communities’ is usually applied by political scientists for a ‘clearer theory of state’ and for ‘formulating interest and reconciling differences of interest’.²² Peter Haas 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.²³

The validation of the ‘epistemic communities’ claims of expertise and impartiality are judged by external social standards such as ‘peer review, non-political appointment based on merits to authoritative panels, track record, publications and training’.²⁴

The engagement of the NGT’s scientific experts in the decision-making process is akin to Peter Haas’s concept of ‘epistemic communities’ operating within an environmental regime. It is suggested that the involvement of experts as ‘constructive science scholars’ in environmental decision making is subject to similar analysis.

Further, it is suggested by Lorna Schrefler that interactive scientific expert involvement increases structural output in an institution, governance or political order.²⁵ She argues that expert knowledge and expertise play a key role in the successful functioning and credibility of independent regulatory agencies (IRAs) based on the premise of ‘technical policy makers operating in isolation from political factors’. Schrefler states: ‘IRAs are considered as central producers and users of policy relevant knowledge. In-house expertise is often a core feature of their independence’.²⁶ The use of scientific knowledge provides legitimacy in output via

²² P.M. Haas, ‘Ideas, Experts and Governance’, in Ambrus et al., n. 1 above, pp. 19–43, at 30.

²³ P.M. Haas, ‘Epistemic Communities’, in D. Bodansky, J. Brunée & E. Hey (eds), *The Oxford Handbook of International Environmental Law* (Oxford University Press, 2007), pp. 791–806, at 793.

²⁴ Haas, n. 22 above, p. 30, n. 22.

²⁵ L. Schrefler, ‘The Usage of Scientific Knowledge by Independent Regulatory Agencies’ (2010) 23(2) *Governance: An International Journal of Policy, Administration, and Institutions*, pp. 309–30; L. Schrefler, ‘Reflections on the Different Roles of Expertise in Regulatory Policy Making’, in Ambrus et al., n. 1 above, pp. 63–81.

²⁶ *Ibid.*, ‘Reflections on the Different Roles’, p. 65.

this expertise coupled with the requirement to publish reasons to justify their regulatory decisions.

Upon reviewing the academic literature on the importance and use of expertise by policy makers, Schrefler constructs three principal approaches to knowledge utilization: instrumental, strategic and symbolic. The rationale underpinning these approaches is based on the use of expertise provided that the ‘experts are the fabric from which the organization is cut’.²⁷ These approaches are hereafter applied and tested through the data acquired in respect of the NGT and its expert members.

The *symbolic* usage, often referred to as the ‘logic of appropriateness’ and decoupled from policy decisions, aims to gain legitimacy and strengthen the agency’s reputation as a credible player in the policy arena and conforming to external expectations and pressures.

The *instrumental* use of knowledge is associated with the agency that identifies the best solution for the issue at stake. The problem-solving approach lies in an agency’s need to perform its mandate and deliver outputs in line with the goals it has assigned itself or received from the political principals. The problem-solving abilities can be chosen to tackle ‘specific policy issues in [the] short term, but also to cope with future problems by accumulating relevant expertise’.²⁸

The third type of knowledge utilization is *strategic* in nature and is subdivided into two categories: political and substantiating. The strategic political usage, as Weiss defines it, is ‘tactical use of knowledge’,²⁹ which expands the powers and resources of the regulatory agency in order to convince the ‘political principals to review/extend the agency’s mandate’.³⁰ The strategic substantiating approach involves well-crafted scientific knowledge which justifies and supports a predetermined or preferred policy solution. It can also serve as ‘ammunition in an adversarial context’.³¹

Expert knowledge may be employed in different ways and it does not require each IRA to routinely adopt an identical approach to scientific knowledge. Schrefler recognizes that empirical testing of different approaches to knowledge utilization is currently limited as ‘it is relatively difficult to operationalize and measure expert knowledge utilization variables and, more broadly, to distinguish the influence of expertise from other factors affecting policy decisions’.³² Variables such as availability of adequate human and financial resources, the level of disagreement over policy values and goals between the actors involved in the policy environment, the power distribution between the agency and its principal(s); pressures from different categories of stakeholder are likely to affect the production and use of scientific knowledge by IRAs. To overcome this limitation, Schrefler suggests ‘employing qualitative methods as process tracing and case studies’ in order to better understand

²⁷ Lawrence, n. 1 above, p. 193.

²⁸ Schrefler, ‘Reflections on the Different Roles’, n. 25 above, p. 69.

²⁹ Weiss, n. 4 above, p. 429.

³⁰ Schrefler, ‘Reflections on the Different Roles’, n. 25 above, p. 70.

³¹ Schrefler, ‘The Usage of Scientific Knowledge’, n. 25 above, p. 315.

³² Schrefler, ‘Reflections on the Different Roles’, n. 25 above, p. 71.

the conditions that lead to different uses of knowledge utilization in policy making, which could be relevant for experts inside and outside a regulatory agency.

The creation of IRAs offers structures to allow the utilization of expert knowledge and IRAs can thereby perform their functions in an impartial and neutral manner. However, this assumption, according to Schrefler, is difficult to defend as a simple use of technical power inevitably results in political consequences. To quote, ‘regulatory policy making is better depicted as a continuum ranging from “government of experts” to “government by politicians”. We have to accept that a portion of regulatory policy making is political’.³³ In order to ensure that the use and production of expertise are legitimate, Schrefler concurs with Vibert’s claim for ‘an independent but accountable locus for policy making’ embedded in ‘an effective procedural and organizational set up’.³⁴

Although Schrefler’s work focuses on IRAs, the superimposition of her theoretical analysis of experts onto the NGT produces credible evidence that supports her analytical framework. Like IRAs, the NGT is a creation of statutory legislation and its constitution and powers are set out in the National Green Tribunal Act 2010,³⁵ which also guarantees its independence from political interference or control. Accountability is achieved by a series of established procedures and appeals, operational both in courts of law and in the Tribunal. The decisions of the NGT are not subject to judicial review as are IRAs, but they are subject to review by appeal, to the Supreme Court. Further, the proceedings of the NGT take place in open court, reflecting commonly accepted established rules and procedures. Judgments and associated reasons are also given in open court. Thereafter the decisions and their rationale are available for media and public scrutiny as they are published on the internet as case reports.³⁶ As in Schrefler’s work, the presence of the expert who is fully integrated, accepted and operational within the institution is recognized as a key and unique factor contributing to the ultimate decision – now a legal decision rather than the creation of a policy. Consequently, this article proceeds to apply her analysis to the fieldwork undertaken at the NGT with special reference being paid to the scientific experts sitting alongside lawyer judges, which allows them to input their scientific knowledge and contribute as equal partners to the decision-making process.

The legitimacy of the NGT’s environmental decision making rests in part upon its inclusive and participatory in-house, scientific expertise – it being an important feature within the decision-making process. The interface between science and law is particularly visible in the case of the NGT, where the scientific experts with environmental knowledge work alongside legally qualified judges as collective environmental decision makers of homologous standing.

In this context, I advance my empirical Indian fieldwork to analyze the NGT’s scientific ‘epistemic community’ and its practical application.

³³ Ibid., p. 76.

³⁴ Ibid.

³⁵ The National Green Tribunal Act 2010, the Gazette of India Extraordinary (No. 19 of 2010).

³⁶ NGT website, n. 6 above.

5. THE NATIONAL GREEN TRIBUNAL OF INDIA

5.1. *The Provenance*

The role of India's judiciary in securing the enforcement of rights outside statute law but within the constitutional mandate promoted public interest litigation (PIL) in the 1980s.³⁷ PIL is a broad-based, people-orientated approach, which promotes access to justice through judge-made processes and remedies. PIL revolutionized the judicial procedure by introducing three procedural innovations: (i) expanded standing; (ii) non-adversarial procedure; and (iii) wider remedial action as a result of expanded frontiers of fundamental rights,³⁸ particularly the right to life under Article 21 of the Constitution of India.³⁹ Environmental PIL is a product of the courts' response to inaction by the state or the wrongful action of state agencies in performing their statutory duties, which has resulted in endangering or impairing the quality of life of people as guaranteed by Article 21 of the Constitution of India.⁴⁰ The state is under a duty to enforce this constitutional right by devising and implementing a coherent and coordinated programme for the well-being of the population. Failure on the part of the state prompted judges to issue brief interim directions entitled 'continuing mandamus'. In this context, PIL is considered a 'wheel of transformation' providing access to justice, inter alia, to victims of environmental degradation. In the past two decades courts have locked together human rights and the environment and entertained PIL petitions from various quarters seeking remedies, including the issuing of guidelines and directions in the absence of legislation.⁴¹ The proactive judiciary, acting as 'amicus environment', has produced a major shift in the environmental landscape of India and has also declared and promoted the principles of sustainable development and the precautionary and the polluter pays principles as elements of fundamental law.⁴²

The active engagement of the Indian judiciary in imparting environmental justice nonetheless raised concerns about the effectiveness of PIL. This was in relation to the rapidly increasing number of petitions, complex technical and scientific issues, unrealistic court directions, and individual judicial preferences – often personality driven rather than reflecting collective institutionalized adjudication – as well as the

³⁷ 'Report on the National Juridicare: Equal Justice – Social Justice', Indian Ministry of Law, Justice and Company Affairs (1977).

³⁸ *Akhil Bharatiya Soshit Karamchhari Sangh (Railway) v. Union of India*, AIR 1981 SC 298; *Fertilizer Corporation Kamagar Union v. Union of India*, AIR 1981 SC 344; *Jasbhai Motibhai Desai v. Roshan Kumar* (1976) 1 SCC 671; *Bar Council of Maharashtra v. M.V. Dasholkar* (1976) 1 SCR 306.

³⁹ Art. 21 of the Constitution of India states: 'No person shall be deprived of his life or personal liberty except according to procedure established by law'.

⁴⁰ S.P. Sathe, *Judicial Activism in India: Transgressing Borders and Enforcing Limits* (Oxford University Press, 2002), p. 210; M.G. Faure & A.V. Raja, 'Effectiveness of Environmental Public Interest Litigation in India: Determining the Key Variable' (2010) 21(2) *Fordham Environmental Law Review*, pp. 239–94.

⁴¹ L. Rajamani, 'Public Interest Litigation in India: Exploring Issues of Access, Participation, Equity, Effectiveness and Sustainability' (2007) 19(3) *Journal of Environmental Law*, pp. 293–321, at 295–6; Gill, n. 10 above.

⁴² G. Sahu, 'Implications of Indian Supreme Courts Innovation for Environmental Jurisprudence' (2008) 4(1) *Law, Environment and Development Journal*, pp. 3–19, at 12–3; *Vellore Citizen Welfare Forum v. Union of India*, AIR 1996 SC 2715; *A.P. Pollution Control Board v. Professor M.V. Nayudu*, AIR 1999 SC 812; *Narmada Bachao Andolan v. Union of India*, AIR 2000 SC 3751.

issue of creeping jurisdiction.⁴³ Although the Supreme Court created a procedure that allowed indigents and concerned citizens to access the courts via PIL, it did not prove to be the much heralded 'magic bullet'.⁴⁴

In particular, the Supreme Court of India was concerned with the complexity and uncertainty that underpinned scientific evidence presented to the court.⁴⁵ Such externally generated evidence created tensions, in fears expressed by claimants and assurances given by the defendants. There was judicial concern about its ability to evaluate and incorporate this scientific input in complex environmental cases. Uncertainty becomes a problem when scientific knowledge, claims and counterclaims are institutionalized into policy making as a basis for decision making by the court. Scientists may refine, modify or discard variables or models as more information becomes available. However, agencies and courts must make choices based on existing scientific knowledge. In addition, evidence generally presented in a scientific form may prove to be difficult to test or refute. Therefore, inadequacies in the record arising out of uncertainty or insufficient knowledge may not be properly acknowledged or considered.⁴⁶

The Supreme Court of India, in three important judgments, advocated the establishment of environmental courts. In *M.C. Mehta v. Union of India*,⁴⁷ *Indian Council for Enviro-Legal Action v. Union of India*,⁴⁸ and *A.P. Pollution Control Board v. Professor M.V. Nayudu*,⁴⁹ the Supreme Court observed that as environmental cases frequently involve assessment of scientific data, it was desirable to set up environmental courts on a regional basis with a legally qualified judge and two experts, to undertake relevant adjudication as part of a faster judicial process. It was suggested that the Law Commission of India examine this matter.

The Law Commission of India, in its 186th Report on the Proposal to Constitute Environment Courts (2003), recommended the establishment of environmental courts. This recommendation was based on a review of the technical and scientific problems that arose before the courts and the inadequacy of judicial knowledge on the scientific and technical aspects of environmental issues. The Commission was minded that, in seeking a balanced decision in such cases, 'environmental courts' with scientific as well as legal inputs would be better placed to reach a determination.

⁴³ U. Baxi, 'How Not to Judge the Judges: Notes towards Evaluation of the Judicial Role' (1983) 25 *Journal of the Indian Law Institute*, pp. 211–37, at 211; B.N. Srikrishna, 'Judicial Activism: Judges as Social Engineers, Skinning a Cat' (2005) 8 *SCC (J)*, pp. 1–17, at 3; G. Sahu, 'Implementation of Environmental Judgments in Context: A Comparative Analysis of Dahanu Thermal Power Plant Pollution Case in Maharashtra and Vellore Leather Industrial Pollution Case in Tamil Nadu' (2010) 6(3) *Law, Environment and Development Journal*, pp. 337–52, at 345.

⁴⁴ Gill, n. 10 above, p. 202.

⁴⁵ *A.P. Pollution Control Board v. M.V. Nayudu* 1999(2) SCC 718 and 2001(2) SCC 62.

⁴⁶ C. Barton, 'The Status of the Precautionary Principle in Australia' (1998) 22 *Harvard Environmental Law Review*, pp. 509–58, at 510–1; G.N. Gill, 'A Green Tribunal for India' (2010) 22(3) *Journal of Environmental Law*, pp. 461–74, at 462–3.

⁴⁷ AIR 1987 SC 965.

⁴⁸ 1996(3) SCC 212.

⁴⁹ N. 45 above.

Such courts could have wider powers in order to make local inspections and hear oral evidence from resident panels of environmental scientists.⁵⁰

In 2009 when the Green Tribunal Bill was debated in Parliament,⁵¹ the NGT was mooted to be ‘one element of a reformist approach to environmental governance’.⁵² The government proposed the creation of a circuit system for the new tribunal. Innovation and change were needed; this occurred through the establishment of the NGT after the passing of the National Green Tribunal Act in June 2010.⁵³

5.2. Statutory Powers

The NGT decides cases relating to environmental protection and conservation of forests and other natural resources, including the enforcement of any legal right relating to the environment, and it provides relief and awards compensation for damage to persons and property. The NGT was established on 18 October 2010 and became operational on 5 May 2011, with New Delhi selected as the site for the principal bench.⁵⁴ The Ministry of Environment and Forests (MoEF), Government of India, issued a notification, on 17 August 2011, establishing regional benches of the NGT in Bhopal, Pune, Chennai and Kolkata to cover the central, western, southern and eastern zones of India.⁵⁵

The NGT’s composition, jurisdiction, powers and procedures are construed by reference to the provisions of the NGT Act 2010.⁵⁶ This enactment is read and construed cumulatively to achieve objectivity in examining dimensions of the jurisdiction of the Tribunal and to interpret the relevant provisions for securing the fields in which the Tribunal can effectively settle disputes or issues relating to environmental jurisprudence within the framework of the NGT Act.⁵⁷ The NGT is a multi-faceted and multi-skilled body in which the joint decision makers hold relevant qualifications and appropriate work experience either in law or in technical fields.

The NGT is vested with three forms of jurisdiction within the framework of the NGT Act 2010: original, appellate and special jurisdiction.⁵⁸ The original jurisdiction, under section 14 of the Act, is exercised in civil cases⁵⁹ in relation to a

⁵⁰ The Law Commission of India, 186th Report (2003), pp. 8–9.

⁵¹ The Bill was introduced in Parliament on 31 July 2009; passed in Lok Sabha (the lower house) on 30 Apr. 2010 and in Rajya Sabha (the upper house) on 5 May 2010.

⁵² Statement made by Jairam Ramesh, former Minister of Environment and Forests, in the Indian Parliament, Apr. 2010, available at: <http://www.igovernment.in/news/31968/india-sets-up-national-green-tribunal>.

⁵³ N. 35 above.

⁵⁴ Ministry of Environment and Forests (MoEF), Government of India, Notification, 5 May 2011, SO 1003 E.

⁵⁵ MoEF, Government of India, Notification, 17 Aug. 2011, SO 1908 E.

⁵⁶ *M.P. Pollution Control Board v. Commissioner, Municipal Corporation Bhopal*, NGT Judgment, 8 Aug. 2013.

⁵⁷ *Sunil Kumar Samanta v. West Bengal Pollution Control Board*, NGT Judgment, 24 July 2014.

⁵⁸ *Wilfred J. v. Ministry of Environment and Forests*, NGT Judgment, 17 July 2014.

⁵⁹ The NGT in *M.P. Pollution Control Board* (n. 56 above) observed: ‘Once the legislature restricts the jurisdiction of the tribunal only to civil cases, then that jurisdiction is incapable of being expanded to the cases which are patently and substantially criminal in nature’.

substantial question relating to the environment.⁶⁰ This includes the enforcement of any legal right relating to the environment and such questions that arise out of the implementation of the enactments specified in Schedule I to the Act.⁶¹ The subject matter of an original application should therefore be a civil case and relate to a substantial question concerning the environment. The appellate jurisdiction is controlled under section 16 of the NGT Act 2010. The Tribunal is the appellate authority competent to decide questions of law and fact against orders and decisions passed by authorities under the enactments specified in Schedule I.⁶² The power is of a wide and overriding nature and may be exercised *ex debito justitiae* (that is, in the interests of justice).⁶³ An aggrieved person has the right to approach the Tribunal under its original or appellate jurisdiction, and it is important to note that the ‘aggrieved person’ in environmental matters has been given a liberal and flexible interpretation.⁶⁴ In environmental matters, the damage is not necessarily confined to the local area as the effects of environmental degradation might have far-reaching consequences going beyond the immediate locality. Therefore, an aggrieved person need not be a resident of the local area: any person – whether a resident of that particular area or not and whether personally, directly or otherwise aggrieved – may approach the Tribunal. Section 15 of the NGT Act 2010 provides the Tribunal with special jurisdiction to order relief and compensation to victims of pollution and other environmental damage arising under the enactments specified in Schedule I, for restitution of damaged property and for restitution of the environment in such areas as the Tribunal may think fit. Thus, the dimensions and areas in which the NGT may exercise jurisdiction are very wide.

The NGT is mandated to pass orders, decisions and awards in conformity with sustainable development, and the precautionary and polluter pays principles.⁶⁵ In *M.P. Patil v. Union of India*⁶⁶ the Tribunal observed:

the three principal maxims governing the field of environment are the sustainable development, the polluter pays and the precautionary principles. Under the Indian environmental jurisprudence, these three principles are statutorily prescribed. Development may be carried out to satisfy the need of a developing society but it has to be regulated so as to satisfy the requirement of preservation and nurturing of the natural resources, which are the real assets of the society.⁶⁷

⁶⁰ The NGT Act 2010, s. 2(m), classifies ‘substantial question relating to the environment’ under two heads: (i) where there is a direct violation of a statutory duty or environmental obligation which is likely to affect the community, or the gravity of damage to the environment or property is substantial, or the damage to public health is broadly measurable; (ii) where the environmental consequences relate to a specific activity or a point source of pollution.

⁶¹ The enactments in Sch. I include the following: Water (Prevention and Control of Pollution) Act 1974; Water (Prevention and Control of Pollution) Cess Act 1977; Forests (Conservation) Act 1980; Air (Prevention and Control of Pollution) Act 1981; Environment (Protection) Act 1986; Public Liability Insurance Act 1981; and Biological Diversity Act 2002.

⁶² *Ibid.*

⁶³ *Wilfred J. v. Ministry of Environment and Forests*, n. 58 above.

⁶⁴ *Goa Foundation v. Union of India*, NGT Judgment, 18 July 2013; *Betty C. Alvares v. State of Goa*, NGT Judgment, 14 Feb. 2014.

⁶⁵ NGT Act 2010, s. 20.

⁶⁶ NGT Judgment, 13 Mar. 2014.

⁶⁷ *Ibid.*, paras 72 and 74.

The NGT is a fulcrum for sustainable development, but striking a balance between the environment and development continues to be both complex and contentious. The article proceeds to consider the use of expert knowledge in applying the above-mentioned principles in deciding environmental disputes.

6. APPLYING THEORY TO THE NGT

This section deals with the important theoretical work developed by two political scientists, Peter Haas⁶⁸ and Lorna Schrefler,⁶⁹ although neither has applied and tested his or her work within an adjudicatory institution, such as the NGT. Haas has characterized epistemic communities as being made up of experts with professional training, enjoying social authority based upon the reputation for impartial activities. Schrefler's contribution to this article concerns the application of her theory of knowledge utilization as embedded in a specific procedural decision-making tribunal: in this case the NGT. The section starts by applying Haas's work and is followed by relating Schrefler's knowledge utilization to the NGT.

6.1. *Expert: Value*

A scientific consensus that applies regulations and promotes scientific input focusing upon environmental sustainability and human welfare creates the 'epistemic community'. The 'community' is composed of neutral, scientific experts who are active contributors within a decision-making, legal forum: the NGT.

The diverse scientific expertise lends further credence to the environmental legitimacy of the NGT. The 'epistemic qualities' of the experts as competent individuals, who are recognized as national and international experts in a range of environmental areas, promotes independence from any party line, organizational bias or corporate association. The NGT benches include scientists with expertise in environmental sciences, environmental engineering, environmental governance, environmental safeguards, industrial and urban environmental management, urban environmental pollution, environmental law and policy, and forestry. The status of NGT experts as 'nationally and internationally recognized specialists' can be judged by external indicators. These include previous appointments to high-level committees, representing India in environmental issues, drafting and negotiating multilateral environmental agreements, peer-reviewed publications, and recognition through professional awards.⁷⁰

The value of expert bench members is acknowledged and appreciated by the judicial members. Judge 1 stated: 'The expert members come with wide knowledge. Professors, technocrats and administrators with wide environmental knowledge are a part of the NGT decision-making process. Their contribution is substantial'.⁷¹ Judges 2 and 5 added: 'The real solution comes from the expert members. The input of expert members is much more valuable for

⁶⁸ Haas, nn. 22 and 23 above.

⁶⁹ Schrefler, n. 25 above.

⁷⁰ NGT website, n. 6 above.

⁷¹ Interview, 16 July 2014.

environmental matters'.⁷² Judges 3 and 6 commented: 'This is the speciality of the Tribunal which has not only judicial talent but also expert talent. This is a peculiarity of the Tribunal. It is a balanced way of doing work'.⁷³

The scientific input of the experts on the five benches is appreciated by those who appear before them as lawyers or as litigants. For instance, Senior Lawyer 1 stated: 'The presence of expert members on the NGT bench is a step in the right direction. The expert members better understand and deliberate the complex environmental issues. Expert members have specialist knowledge on environmental matters which many a time the lawyers do not have'.⁷⁴

Senior Lawyer 2, with 25 years' standing and an *amicus* appointed by Bench 4, told me:

This is a bench having an expert member with relevant expertise and is a body predisposed to environmental issues. You do not have to argue why you are here but you have to argue your case. Judges in the High Courts of India are not necessarily acquainted with environmental law and the lawyer has to start from scratch. However, in the NGT, the expert member knows and understands the problem. I have seen expert members asking questions which both parties have not thought of.⁷⁵

Young lawyers in Pune and Chennai felt that the expert members introduce ecological awareness and try to resolve the problem rather than simply decide the case. This offers a steep learning curve for many lawyers. To quote:

The composition of the NGT bench with its expert member is an effective way to deal with environmental matters. The High Court or the Supreme Court judges fail to understand the environmental issues. A bench of this kind with an expert member is creating new environmental jurisprudence. The expert members help young lawyers understand environmental issues.⁷⁶

Litigants also praise the bench composition. Litigants 1, 2 and 3 stated:

The NGT is our only hope because there are experts sitting who understand the problem. We are ordinary citizens who daily see the environmental destruction and its impact on us and future generations. Honestly, the environment is a sensitive issue which should only be handled by experts. Our experience has been tremendous in the NGT benches. We are attending the case in person and have come three to five times to the NGT. Judges are very sensitive and understand what we have placed before them and are able to take our cause without us knowing the law. For us this is a heartening experience. This NGT is a life saver. [The] NGT has given us justice and in future we will get justice because the judges are experts who are concerned about the environment and understand what they are saying. Most importantly, this we do not find in other courts, such as the High Court.⁷⁷

⁷² Interviews, 4 Aug. 2014 and 8 Mar. 2015.

⁷³ Interviews, 25 and 30 July 2014.

⁷⁴ Interview, 17 July 2014.

⁷⁵ Interview, 31 July 2014.

⁷⁶ Interviews, 30 July and 1 Aug. 2014.

⁷⁷ Interview, 1 Aug. 2014.

6.2. Expert: Neutrality

At present there are ten professionally qualified, expert members of the NGT, although there is a strong case in favour of increasing the number of expert members on the regional benches.⁷⁸ They must have a minimum of 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.⁷⁹ Court 1 has six expert members (three sitting in two courts) whereas Courts 2 to 5 each has one scientific member. These experts, working alongside legally qualified judges, constitute an interdisciplinary decision-making body.

The selection process of the Tribunal members is structured to minimize executive influence. The process of selection is set out in the National Green Tribunal Appointment Rules.⁸⁰ This appointment process promotes transparency, accountability, neutrality and independence. In *Wilfred J. v. Ministry of Environment and Forests*,⁸¹ the NGT observed:

There is nothing in the provision of the NGT Act that directly or even by necessary implication is indicative of any external control over the National Green Tribunal ... [The] Ministry of Environment and Forests is merely an administrative ministry for the National Green Tribunal to provide for means and finances. Once the budget is provided, the Ministry cannot have any interference in the functioning of the National Green Tribunal. The entire process of appointment and even removal is under the effective control of the Supreme Court of India, as neither appointments nor removals can be effected without the participation and approval of a sitting judge of the Supreme Court of India. The administration is merely an executing agency within the framework of the Act.⁸²

Judge 1 of the NGT informed me that he identified himself as the leader of a team that he was involved in selecting. He sought the necessary experience, expertise, character and awareness that would make them effective judges of environmental matters throughout India. Judge 1 stated: 'I am really very happy with the experts. All the experts have been picked by me. I was a judge of the Supreme Court and the Chairman of the Selection Committee. So I have made some contribution in this regard. I find these people extremely good in their field'.⁸³

India's patronage culture of providing sinecure, post-retirement assignments to former judges, senior administrators and technocrats in judicial and quasi-judicial bodies at the national and state levels has been questioned and accusations made of

⁷⁸ NGT website, n. 6 above.

⁷⁹ The NGT Act 2010, s. 4(1), provides that the NGT is to consist of a full-time chairperson and no fewer than 10 (but subject to a maximum of 20) full-time judicial and expert members; s. 5(2) spells out that the judicial members must have the requisite legal expertise and experience and the expert members will include technical experts from life sciences, physical science, engineering or technology.

⁸⁰ The National Green Tribunal (Manner of Appointment of Judicial and Expert Members, Salaries, Allowances and other Terms and Conditions of Service of Chairperson and other Members and Procedure for Enquiry) Rules 2010 and 2012, available at: http://www.greentribunal.gov.in/ngt_rules.aspx.

⁸¹ N. 58 above.

⁸² *Ibid.*, para 34.

⁸³ Interview, n. 71 above.

‘give and take’.⁸⁴ Suggestions such as a transparent selection process or a ‘cooling off period’ of three or four years before accepting any such positions have been made to dissuade the ‘senior and most respected people’ on the verge of retirement from improper or questionable association with corporations, institutions or people of influence. In *Kalpavriksh v. Union of India*,⁸⁵ for instance, the NGT addressed the issue of relevant qualifications being required for MoEF appointments to committees dealing with environmental issues, specifically the Ministry’s Expert Appraisal Committee (EAC) and the State Expert Appraisal Committee (SEAC). The Tribunal asked the Ministry to provide revised eligibility criteria and specific requirements for persons to be appointed as chairperson and members of the EACs and SEACs in accordance with provisions of the Environment Impact Assessment Notification 2006. Further, a note of caution was added: ‘If people who are not strictly qualified and eligible in the field of environment are selected ... The obvious result would be improper application of mind. ... It would lead to improper consideration and disposal of application for clearance filed by the project proponent’.⁸⁶

A US environmental judge informed me that ‘the Tribunal is a proven model for my state as its bench is comprised of independent, carefully appointed judges who are unafraid of making difficult decisions. [The] NGT is an example of informed judicial courage’.⁸⁷ For the NGT the statutory provisions act as a benchmark for a rigorous appointment process subject to public scrutiny. This reduces the possibility of cronyism and encourages independent and impartial decisions leading to transparent, effective environmental decision making, which in turn promotes awareness and trust amongst the citizenry. Interview data with court lawyers and litigants demonstrates that they ultimately appreciate a selection procedure that results in the appointment of qualified scientists who apply their expertise to make informed decisions that promote environmental justice.⁸⁸

6.3. Schrefler’s Variables

Schrefler’s work suggests that undertaking effective, empirical institutional research is limited by the presence of variables such as multiple external stakeholders that seek to pursue their claim to participate in environmental regulation. Schrefler states that ‘the higher the number of stakeholders, the greater the degree of conflict, as each player is likely to generate conflicting pressures and demands on the agency’.⁸⁹ Fortunately, the NGT, as a judicial body, enjoys a high, although not absolute, degree of jurisdictional immunity from the advances of the stakeholders and, indeed, it acknowledges them largely on its own terms, such as through the ‘stakeholder consultative adjudicatory

⁸⁴ A. Chatterjee, ‘Stormy Sinecures’, *The Telegraph (Calcutta)*, 24 Sept. 2014, available at: http://www.telegraphindia.com/1140924/jsp/opinion/story_18866574.jsp#.VIx04nuHjtU.

⁸⁵ NGT Judgment, 17 July 2014.

⁸⁶ *Ibid.*, para. 33.

⁸⁷ Interview, 14 Mar. 2015.

⁸⁸ Interview, 15 Mar. 2015; see nn. 76 and 77 above.

⁸⁹ Schrefler, ‘The Usage of Scientific Knowledge’, n. 25 above, p. 316.

process'.⁹⁰ These consultations take place on the NGT's premises and stakeholders are invited to participate under the jurisdiction, procedures and chairmanship of the NGT.

Further, the NGT has been shielded from the potentially challenging agendas of external stakeholders by the well-established doctrine in India of the independence of the judiciary.⁹¹ While it is clear that the decisions of the NGT are subject to appeal to the Supreme Court,⁹² what is not open to appeal is the internal, confidential, decision-making process itself. This process is not public, although this article, through its detailed fieldwork, identifies and explains the internal decision-making process that is founded on the 'principle of collegiality'. Thus, in the absence of effective pressure from external stakeholders, the NGT benches have exercised judicial independence,⁹³ which has allowed the NGT to develop its own internal decision-making process. The small number of bench members, exercising a jointly constructed decision-making procedure in a private setting, produces a sense of collegiality and reduces the importance and influence of external stakeholders.

It is clear that scientific expert involvement through the process of 'collegiality' offers an effective way to generate enhanced legitimacy and public approval. Harry T. Edwards notes that collegiality results in a 'process' which creates conditions that ultimately produce a principled agreement: the judgment.⁹⁴ He does not accept that collegiality is founded simply upon friendship, homogeneity or conformity. Instead it is a matter of common concern to get the law right. To quote: 'Collegiality plays an important role in mitigating the role of partisan politics and personal ideology by allowing judges of different perspectives and philosophies to communicate with, listen to, and ultimately influence one another in constructive and law-abiding ways'.⁹⁵

This is not to deny that individuals have personal, social or political positions that might influence their decisions, but rather that the overriding process of collegiality helps to ensure that decisions are not pre-ordained as a consequence of these extraneous relationships, thoughts and influences. This process is not unistructural; it is a sophisticated combination of rules, customs, routines, legal obligations, leadership skills, mutual trust, personal confidence and the shared belief in common goals. Together, these qualities create the process of collegiality.

Strong, positive collegial relationships allow and promote judicial independence of mind and discussion resulting in an interdependent and interdisciplinary decision-making process. This interdependence ensures that each person's intellectual and

⁹⁰ See text accompanying n. 115 below.

⁹¹ *Namit Sharma v. Union of India* (2013) 1 SCC 745; *C. Ravichandran Iyer v. Justice A.M. Bhattacharjee* (1995) 5 SCC 457.

⁹² NGT Act 2010, s. 22. The appeal under s. 22 may be filed only on the grounds provided in s. 100, Civil Procedure Code, 1908, which include a substantial question of law (i.e., a debatable question, not previously settled by the law of land, or which has a binding precedent and does not involve a pure question of fact): see *Amol v. State of Maharashtra*, NGT Judgment, 17 Feb. 2015.

⁹³ This is not to say that this independence is total and absolute: see Section 7 on *suo motu* powers and the conclusion.

⁹⁴ H.T. Edwards, 'The Effects of Collegiality on Judicial Decision Making' (2003) 151 *University of Pennsylvania Law Review*, pp. 1639–90.

⁹⁵ *Ibid.*, p. 1656. However, for a criticism of 'collegiality' see Paterson, n. 9 above, pp. 142–3.

judicial strengths are recognized and introduced to the collective decision-making process. It allows each judge to check his personal position with that of an alternative view from a possibly better informed or experienced colleague. Edwards welcomes and promotes diversity. He welcomes the idea that ‘differences in professional and personal background, areas of expertise ... diversity among the judges make for better informed discussion’.⁹⁶

Collegiality has a function in institutionalizing judges into shared understanding and action, particularly if the size of the bench is small. Deliberation, conformity and cohesion are reflected in the teamwork and collective practice exercised throughout the five NGT benches. The lead provided by Judge 1 to the teamwork practice is based upon a collaborative approach. According to Judge 1:

What we do is to have a pre-hearing conference and a post hearing conference. Normally, even while passing a small order, I like to interact with the judicial and expert members so that there is complete coherence and unanimity because sometimes what you think may be wrong and what the other person may suggest is right. I give full margin to that possibility. Secondly, whosoever authors the judgment, we have a pre-writing session where we discuss the facts and I and other judicial members state what is the law and the legal position. Then the experts tell us the technical aspects. I ask the technical members to give me a short note. Then we consider it. Then I, or another judicial member or expert member prepares a draft. Next we deliberate the draft. Then we get in writing an agreement by each expert and judicial member. Ultimately, the judgment is finalised.⁹⁷

Experts 2, 3 and 6 find this process of drafting a judgment to be extremely valuable. They agreed that:

We always have a discussion on the important issues before we go to the court. But also before writing a judgment a technical note is required by the judicial member who is writing the judgment. Often the entire technical note is reproduced and forms part of the judgment. We have never had a dispute as we always discuss and have an agreement before we pronounce the judgment. The final judgment is always written in a draft form circulated to all the members before signing the judgment. Every member reads it and has a right to correct, delete or modify [it] even if it is a major part of the judgment. Finally the judgment is signed and pronounced. This is an internal unwritten practice followed in [the] NGT.⁹⁸

Teamwork,⁹⁹ consensus and clarity,¹⁰⁰ and the blending of opinions and expertise¹⁰¹ are characteristics and terms commonly expressed by the regional judges.¹⁰²

My fieldwork suggests there is a close personal and working relationship between Tribunal members, which in part reflects the small numbers on each bench.

⁹⁶ Edwards, n. 94 above, p. 1668.

⁹⁷ Interview, n. 71 above. For a detailed discussion on ‘collegiality and the NGT’ see G.N. Gill, ‘National Green Tribunal: Judge Craft, Decision Making and Collegiality’ (2014) 2 *National Green Tribunal International Journal of Environment*, pp. 43–53.

⁹⁸ Interviews, 14, 15 and 16 July 2014. Bench 5 NGT also follows the same process.

⁹⁹ Bench 2 NGT, interview, 25 July 2014.

¹⁰⁰ Bench 3 NGT, interview, 22 July 2014.

¹⁰¹ Bench 4 NGT, interview, 30 July 2014.

¹⁰² To date there has been only one instance of a two-judge bench failing to agree. The matter is referred and pending before the Chairperson, in accordance with the NGT Act 2010, s. 21.

There appears to be no hierarchy, disciplinary priority or external pressure that determines a scientific or legal bias in their decision-making process. Their accounts of their internal operating processes and interpersonal relationships reflect the recognition of seeking a common goal – that of environmental justice.

6.4. *The Application of Expert Knowledge*

Schrefler identifies three possible uses of expert knowledge by regulators: (i) symbolic (strengthening the agency's reputation and legitimacy; such knowledge is decoupled from policy decisions); (ii) instrumental (identifying the best solution to a given problem); and (iii) strategic (advocating a pre-defined policy position or providing arguments to expand the power of the agency).¹⁰³

My fieldwork highlights the contribution of judge-scientists to the NGT's environmental decision making through the independent application of science free from political considerations. It shows how the participation of scientific expertise in various cases and interviews reveals the different typologies of the use of expert knowledge. It provides an opportunity for the empirical application of Schrefler's categories.

Symbolic

The symbolic use of expertise is reflected in the NGT as it is a specialized body equipped with the necessary expertise to handle environmental disputes involving multi-disciplinary issues. A five-bench judgment in *Wilfred J. v. Ministry of Environment and Forests*¹⁰⁴ stated that 'the Tribunal must inspire confidence and public esteem. It should be manned by expert minds and persons of judicial acumen and experts from the relevant field with capacity to decide cases with the judicial members. The Tribunal should have [an] effective and efficacious mechanism'. The NGT is regarded as a forum for testing the idea that economic advancement is tightly wired to public safety, and to the security of water, air, and land.¹⁰⁵ In *Braj Foundation v. Government of Uttar Pradesh*¹⁰⁶ the Tribunal stated:

It is clear that the NGT is distinct from other tribunals either created as per the provisions of the Constitution of India or otherwise. It is a constitutional creature with a specific purpose on the basis of certain principles like sustainable development, [the] precautionary principle and [the] polluter pays principle. The NGT, which proceeds to adjudicate ... disputes which involve substantial questions relating to [the] environment, consists of expert members apart from judicial members ... there is nothing to presume that the NGT is either subordinate to any High Court or under the powers of superintendence of any High Court.¹⁰⁷

¹⁰³ Schrefler, n. 25 above.

¹⁰⁴ N. 58 above.

¹⁰⁵ K. Schneider, 'India's National Green Tribunal Challenges Government and Industry to Follow the Law', *Circle of Blue*, 17 Nov. 2014, available at: <http://www.circleofblue.org/waternews/2014/commentary/editorial-in-the-circle-fresh-focus/indias-national-green-tribunal-challenges-government-industry>.

¹⁰⁶ NGT Judgment, 5 Aug. 2014.

¹⁰⁷ *Ibid.*, paras 23, 25.

Instrumental

Instrumentally, the NGT experts believe in a problem-solving approach by advancing scientific inputs into the decision-making process, which subsequently filters through to improve environmental management. This innovative development by the NGT moves traditional, single-issue, legal dispute ‘adjudication’ between the disputing parties beyond the ‘courtroom door’ in its implicit and sometimes explicit creation of scientifically justified policy, which seeks to ensure minimal damage to the environment and the protection of the larger interest of society. Expert 5, for instance, illustrated the instrumental use of expertise and its consequential wider impact by reference to the cutting of trees. He stated:

Where there are gaps or limitations in the policy, the NGT inter[ven]es and gives directions to the government to incorporate the same. For example, cases were filed against the cutting of fully grown trees in Delhi due to various developmental activities. There were no policy guidelines by the MoEF to state governments or urban bodies. I asked the authorities about exploring the possibility of translocating the trees elsewhere depending upon the season, soil, species, age and other factors. Accordingly, guidelines were issued to the MoEF to incorporate translocation of trees as a mandatory policy prescription before permitting the cutting of trees.¹⁰⁸

The case of *Asim Sarode v. Maharashtra Pollution Control Board*¹⁰⁹ identified the use of Expert 7’s expertise in a judgment which develops a scientifically based approach to the problem of the disposal of used tyres. This expert member considered the urgent need to develop regulations to deal systematically with the issue based on the ‘life cycle approach’, considering the pollution potential, data on tyre generation, technology options, techno-economic viability and the social implications on the basis of the principles of sustainable development and the precautionary principle.¹¹⁰ The judgment reflects the scientific input of the expert member and suggests approaches, such as extended producers’ responsibility, advanced recycling charges, common facilities and use of bar coding, to ensure the effective collection and disposal of used tyres.

The NGT, in its commitment to resolve environmental issues, may adopt an investigative procedure, thereby suggesting the instrumental use of knowledge. This procedure, upheld by the Supreme Court in *Ministry of Environment & Forests v. Nirma Ltd.*,¹¹¹ involves the inspection of affected sites by expert members.¹¹² The purpose of site inspection is to compare and contrast contradictory claims, positions and reports filed by the respective parties. The use of Expert 6’s expertise in a municipal solid waste case explains this point. According to Expert 6:

Normally we go into the details of technical and scientific aspects of the issue and its impact. We also conduct local inspections at the site and examine the prevailing conditions.

¹⁰⁸ Interview, 25 July 2014.

¹⁰⁹ NGT Judgment, 6 Sept. 2014.

¹¹⁰ *Ibid.*, paras 8, 17.

¹¹¹ Civil Appeal No. 8781-83/2013, 4 Aug. 2014.

¹¹² *K.K. Singh v. National Ganga River Basin Authority*, NGT Judgment, 16 Oct. 2014.

We discuss the situation with the people inhabiting the area. We go into the entire submission of parties and look into the feasible options to solve the problem. For example, in the state of Punjab, municipal solid waste (MSW) is a big problem and the litigation is pending before us. Punjab generates 4250 tons of MSW every day. I drafted a model action plan for the handling of the MSW based upon important principles, namely, effective segregation, collection and transportation; maximum resources recovery; effective treatment; and safe disposal. The copy of the model action plan was circulated to the Bhopal bench on their request so that the same could be replicated in the state of Madhya Pradesh. Eighty percent of pollution in India is because of sewage due to rapid urbanization. A facility, if fully established and made optimally operative, would not only help the public at large but would largely serve the purpose of environmental protection.¹¹³

The NGT, in *Pathankot Welfare Association v. State of Punjab*,¹¹⁴ gave effect to this model action plan for solid waste by pronouncing it as general law. Encapsulating such a wide-ranging policy within the judgment promotes the larger public interest and dramatically expands traditional judicial functions associated with case management and disposal of the individual case.

The stakeholder consultative adjudicatory process is the most recent of the NGT's problem-solving procedures. It demonstrates the instrumental usage within the formal structure of the NGT of both internal and external experts in parallel with the stakeholders in order to understand and seek solutions to issues of national importance. Judge 1 stated:

For [the] protection and preservation of the environment, all stakeholders involved in the consultative adjudicatory process for [the] enforcement of environmental law have to come together and act. It is not applicable to a day-to-day case or a party-to-party case. This process is applicable to cases of wider ramification involving major issues like river cleaning or air pollution. Major issues having a public impact either on public health, [the] environment or ecology can be better handled and resolved when stakeholders are brought together with the Tribunal's scientific judges for eliciting the views of all concerned – government, scientists, NGOs, public and the NGT. Stakeholder process will provide a greater element of consent rather than opposition to a judgment.¹¹⁵

Expert 2 echoed the same opinion by identifying the ongoing Yamuna river¹¹⁶ and air pollution¹¹⁷ cases as illustrations of the new stakeholder consultative adjudicatory process.¹¹⁸ Efforts are being made here to ensure that the scientifically driven judgments reflect the interests, expectations and plans of the stakeholders in order to produce a decision which supports sustainable development and the wider public interest.

¹¹³ Interview, 14 July 2014. I was given a copy, by Expert Member 6, of the 'Model Action Plan: Municipal Solid Waste Management in Punjab' (Jan. 2014, available at: <http://pmidc.punjab.gov.in/export/sites/default/content/flexiblecontents/Punjab-Model-Municipal-Solid-Waste-Management-Plan-2014.pdf>), which details the technical aspects of MSW.

¹¹⁴ NGT Judgment, 25 Nov. 2014.

¹¹⁵ Interview, 14 Apr. 2015.

¹¹⁶ *Manoj Mishra v. Union of India*, NGT Judgment, 13 Jan. 2015 (now referred to as the *Maily se Nirmal Yamuna Revitalization Plan 2017*).

¹¹⁷ *Vardhaman Kaushik v. Union of India* and *Sanjay Kulshrestha v. Union of India*, NGT Order, 7 Apr. 2015

¹¹⁸ Interview, 12 Apr. 2015.

Schrefler also states that instrumental usage can be adopted by an agency 'to develop and strengthen its ability to cope with thorny policy problems in the future'. India's environmental issues that reflect its economic development policies are an ongoing challenge which is regularly faced and addressed by the NGT. It is in this context of current and future challenges that the use of the expertise of Expert 5 became central in the matter relating to the Biosphere Reserve (BR), particularly the sensitive Achanakmar-Amarkantak Biosphere Reserve (AABR), the subject matter of *Narmada Khand Swabhiman Sewa v. State of Madhya Pradesh*.¹¹⁹ The AABR is included in the world network of BRs under the UNESCO programme. The scientific expert, in the judgment, suggested the introduction of a policy change to integrate aspects of biodiversity protection and commercial activities in the BRs. Such policy should critically assess sustainability and be accompanied by a set of related quantitative, qualitative and descriptive attributes, identified by means of the preparation of a landscape plan to be followed by a detailed environmental impact assessment (EIA) on the principle of sustainable development.¹²⁰

Strategic

Schrefler's framework recognizes the exercise of expert knowledge for political and substantiating purposes. Strategic political usage can be employed 'to expand its (agency) power and strengthen its prestige and reputation'. The political strategic use of knowledge can be illustrated in the NGT through the expansion of its power arising from its decision to initiate *suo motu* (on its own motion) proceedings in environmental cases. The NGT is typically triggered by an aggrieved person filing a motion. In *suo motu* proceedings a court acts on its own volition in the absence of parties. Interestingly, the NGT Act 2010 does not expressly provide the authority to initiate *suo motu* proceedings. Furthermore, in 2012 the NGT, in *Bajinath Prajapati v. MoEF*,¹²¹ commented that 'at the same time it is mentionable that we are not conferred with *suo motu* powers'.¹²² Nevertheless, within a couple of years the Tribunal's position had changed so as to increase its powers by claiming *suo motu* jurisdiction.

The NGT expanded its jurisdiction by taking *suo motu* cognizance of stories published in the news media. Cases such as increased vehicular traffic in Himachal Pradesh,¹²³ dolomite mining in the tiger reserve forest in Kanha National Park,¹²⁴ groundwater contamination in the water supply lines and borewells in Delhi,¹²⁵

¹¹⁹ NGT Judgment, 1 Oct. 2014.

¹²⁰ Expert 5 further stated that the preparation of the landscape plan must take account of the conservation and maintenance of biological diversity, sustainable utilization of natural resources and stabilization of the terrain; improvement and regulation of the hydrological regime; people's involvement in the planning and management of natural resources, and fulfilling the socio-economic and livelihood needs of the people.

¹²¹ NGT Judgment, 20 Jan. 2012.

¹²² *Ibid.*, para. 9.

¹²³ *Tribunal on its own Motion v. State of Himachal Pradesh*, NGT Judgment, 6 Feb. 2014.

¹²⁴ *Tribunal on its own Motion v. Secretary, Ministry of Environment and Forests*, NGT Judgment, 4 Apr. 2014.

¹²⁵ *Tribunal on its own Motion v. Government of NCT, Delhi*, NGT Order, 19 June 2015.

high levels of pollution near the Adyar estuary,¹²⁶ and the clearing and felling of trees in the Sathyamanglam Tiger Reserve¹²⁷ are illustrative of the NGT initiating *suo motu* proceedings. These cases reflect the Tribunal's self-proclaimed, expansionist power to review environmental issues, *ab initio*, simply on the grounds of environmental protection and human welfare. According to Judge 1, '*suo motu* jurisdiction has to be an integral part of the NGT for better and effective functioning of the institution. There are some inherent powers which are vital for effective functioning and *suo motu* jurisdiction is one such power'.¹²⁸

While this proactive decision by the NGT to adopt the practice of *suo motu* falls squarely within Schrefler's political strategic categorization, it also simultaneously attracted the negative attention of external stakeholders. The principal critic, the MoEF, refused to confer *suo motu* power on the Tribunal despite repeated requests. In an affidavit filed before the Supreme Court of India, the MoEF stated that 'the government of India has not agreed to confer *suo motu* powers on the Tribunal. It is for the NGT, an adjudicatory body, to follow the provisions of the NGT Act 2010'.¹²⁹ No doubt, the NGT has strengthened its prestige and public reputation, but this has been achieved at a cost. Its very success has sown the seeds of concern within external institutions with roles and responsibilities for environmental management and environmental justice. However, if one looks beyond strict statutory interpretation, the NGT's liberal interpretation of its founding statute has resulted in this expression of concern. The MoEF has frequently been subject to severe criticism by the NGT for failing to observe its own procedural rules, such as the improper granting of licences without prior EIAs having been completed or appropriately conducted,¹³⁰ and the Tribunal has been prepared to call senior civil servants before the court to hear what often amount to inappropriate or implausible explanations for MoEF decisions.¹³¹ Indeed, in *Sudeip Shrivastava v. State of Chhattisgarh*¹³² the Tribunal took the unusual step of criticizing the Minister of State

¹²⁶ R. Sivaraman, 'Prevent Dumping of Waste in Adyar River: Tribunal', *The Hindu*, 21 Nov. 2013, available at: <http://www.thehindu.com/todays-paper/tp-national/tp-tamilnadu/prevent-dumping-of-waste-in-adyar-river-tribunal/article5373982.ece>.

¹²⁷ 'NGT Takes Note of Report in The Hindu', *The Hindu*, 24 Oct. 2013, available at: <http://www.thehindu.com/news/national/tamil-nadu/ngt-takes-note-of-report-in-the-hindu/article5265680.ece>.

¹²⁸ Interview, n. 71 above: Judges 4 and 5 agreed with Judge 1 in their interviews of 6 and 8 Apr. 2015; see also S. Kumar, 'The NGT Must Have *Suo Motu* Powers', *Down to Earth*, 30 Nov. 2014, available at: <http://www.downtoearth.org.in/interviews/ngt-must-have-suo-motu-powers-47542>.

¹²⁹ A. Vishnoi, 'No *Suo Motu* Powers Provided for You, MoEF Tells Green Tribunal', *The Indian Express Archive*, 26 Aug. 2013, available at: <http://archive.indianexpress.com/news/no-suo-motu-powers-provided-for-you-moef-tells-green-tribunal/1160046>.

¹³⁰ *Sreeranganathan K.P. and Arammula v. Union of India*, NGT Judgment, 28 May 2014; *Prafulla Samantray v. Union of India*, NGT Judgment, 30 Mar. 2012; *Rohit Choudhary v. Union of India*, NGT Judgment, 7 Sept. 2012; *Samata v. Union of India*, NGT Judgment, 13 Dec. 2013.

¹³¹ 'NGT Issues Warrant against MoEF Secretary', *Hindustan Times*, 27 Mar. 2015, available at: <http://www.hindustantimes.com/india-news/ngt-issues-warrant-against-moef-secretary/article1-1331135.aspx>; 'NGT Summons Environment Sec'y over MoEF's Absence from Hearings', *The Economic Times*, 1 Dec. 2013, available at: http://articles.economictimes.indiatimes.com/2013-12-01/news/44619558_1_joint-secretary-the-ngt-moef.

¹³² NGT Judgment, 24 Mar. 2014.

for Environment and Forests and the MoEF for acting arbitrarily and ignoring relevant material issues to reach a holistic appraisal of the environmental issue.

The allegation of judicial overreach was bolstered when the High Court of Madras restrained the NGT Chennai bench from initiating *suo motu* proceedings. The High Court stated:

The NGT is not a substitute for the High Courts. The Tribunal has to function within the parameters laid down by the NGT Act 2010. It should act within four corners of the statute. There is no indication in the NGT Act or the rules made thereunder with regard to the power of the NGT to initiate *suo motu* proceedings against anyone, including statutory authorities.¹³³

Schrefler's strategic substantiating use of knowledge involves well-crafted scientific knowledge that justifies and supports a predetermined or preferred policy solution. In this context, the NGT's statutory mandate is to apply the principles of sustainable development, and the precautionary and polluter pays principles.¹³⁴ The concept of sustainable development has become a complex and contentious issue as a result of the current debate on either (a) giving 'greater weight to economic benefits [which], because of their tangibility and quantifiability, tend to be given greater weight in these balancing exercises than the often less tangible or immediate benefits for society of environmental protection',¹³⁵ or (b) acknowledging that 'acceptability of economic growth should be determined and limited by reference to [the] carrying capacity of the natural system'.¹³⁶

The NGT has become the cynosure of the application of sustainable development. The bias is in favour of pragmatically embracing development for the maximization of human welfare without causing irreversible damage to the environment. Living within environmental limits by adopting the assimilative capacity principle strikes a balance between the environment and development.

According to Experts 1, 3 and 4:

The concept of sustainable development is well documented but to practise [it] in the field is a challenge. The application of sustainable development is only possible if the judge is technically sound. The balancing act is a ticklish issue. It is based upon [the] facts and circumstances of the case. If the larger interest of the society is to be considered with minimal damage to the environment then perhaps it can be balanced. [The e]conomic interest of the society cannot proceed over the environmental interests. ... residential and

¹³³ A. Subramani, 'Green Tribunal's Wings Clipped, Madras High Court Halts *Suo Motu* Proceedings', *The Times of India*, 3 Jan. 2014, available at: <http://timesofindia.indiatimes.com/city/chennai/Green-tribunals-wings-clipped-Madras-high-court-halts-suo-motu-proceedings/articleshow/28346066.cms>.

¹³⁴ NGT Act 2010, s. 20.

¹³⁵ S. Woolley, *Ecological Governance Reappraising Law's Role in Protecting Ecosystem Functionality* (Cambridge University Press, 2014), p. 25; see also S. Owens, 'Negotiated Environments: Needs, Demands and Values in the Age of Sustainability' (1997) 29 *Environment and Planning A*, pp. 571–80.

¹³⁶ G. Garver, 'Introducing the Rule of Ecological Law', in L. Westra, C.L. Soskolne & D.W. Spady (eds), *Human Health and Ecological Integrity: Ethics, Law and Human Rights* (Routledge, 2012), pp. 322–34; see also K. Bosselmann, 'From Reductionist Environmental Law to Sustainability Law', in P. Burdon (ed.), *Exploring Wild Law: The Philosophy of Earth Jurisprudence* (Wakefield Press, 2011), pp. 204–13.

commercial infrastructure development is one such area. On one side the population of India is growing and we need housing for the people. Agricultural land is being diverted for residential development. However, there are coastal zone regulations, forest laws that need to be taken into account before such development is permitted. The Environmental Impact Assessment regulations need to be strictly complied with. That is one of the first yardsticks for any evaluation of the sustainable development process. However, in cases before us, the EIA process is often an eye-wash. Limited involvement of affected people in the hearing, publication, scoping and screening issues, no provision in place to cover landscape and visual impacts in the Indian EIA regulations are some of the steps not followed properly. We go into the details to examine the project and make [the] project proponent accountable for his activities.¹³⁷

Again, the NGT scientific experts played a crucial role in the application of cumulative environmental impact assessment (CEIA). The ability to incorporate cumulative effects analysis into the development of alternatives for an environmental assessment can minimize negative cumulative effects, promote resource sustainability and make room for future development.¹³⁸ In India, there have been serious failures in CEIA studies that have rendered the crucial process meaningless, thereby violating Form 1, section 9 of the EIA Notification of September 2006, which asks for a cumulative impact assessment.¹³⁹ On occasions, the Expert Appraisal Committee of the MoEF has taken a ‘casual approach’ and has granted clearance for projects without performing due diligence.¹⁴⁰

According to Expert 2, who specializes in environmental and social impact assessment:

Cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIA together with other projects in the same vicinity causing related impacts. These impacts occur when the incremental impact of the project is combined with the cumulative effects of other past, present and reasonably foreseeable future projects. Cumulative impact may be [the] same [as] or different [from] those arising out of individual activities and tend to be larger, long lasting and spread over a greater area within the individual impact.

The importance of material data in the CEIA process cannot be underestimated. One is expected to make studies regarding cumulative impacts of all the existing as well as proposed industries; it is expected to collect actual field data regarding each ... existing industry and together with information on [the] proposed industry interpret its impacts on land, water, noise, terrestrial ecology and [the] socio-economic environment. Deliberate concealment or submission of false or misleading information for the

¹³⁷ Interviews, 15 and 22 July and 4 Aug. 2014.

¹³⁸ See, generally, MoEF India, ‘Assessment of Cumulative Impact of Hydropower Projects in Alaknanda and Bhagirathi Basins’, AHEC/2011, June 2011, Ch. 7, available at: <http://www.moef.nic.in/downloads/public-information/CH-7.pdf>; see also Woolley, n. 135 above, pp. 184–5. Alternatives to cumulative effect assessment include but are not limited to value ecosystem components and strategic environmental analysis.

¹³⁹ EIA Notification, S.O. 1533(E), 14 Sept. 2006, available at: <http://envfor.nic.in/legis/eia/eia-2006.htm>; see also ‘Cumulative Impact Assessment Study of Siang Basin in Arunachal Pradesh: Serious Shortcomings; Pro Large Hydro Bias’, *South Asia Network on Dams, Rivers and People*, 18 Feb. 2014, available at: <https://sandrp.wordpress.com/2014/02/18/cumulative-impact-assessment-study-of-siang-basin-in-arunachal-needs-urgent-improvement>.

¹⁴⁰ *T. Muruganandam v. Ministry of Environment & Forests*, NGT Judgment, 11 Nov. 2014; *Samata v. Union of India*, NGT Judgment, 13 Dec. 2013.

purposes of screening, scoping or appraisal can lead ... either [to] stipulating any other environmental conditions or rejection of [the] application for environmental clearance for the proposed project.¹⁴¹

The case of *T. Muruganandam v. Ministry of Environment & Forests*¹⁴² illustrates the scientific concerns and expectations of the NGT in relation to acceptable CEIA reports. The NGT quashed the environmental clearance given to a 3,600-megawatt (MW) thermal power plant in Tamil Nadu on the ground that an appropriate CEIA of the project had not been conducted. The CEIA report suffered from material shortcomings and, to that extent, the report was flawed: there was no mention of the date and location of sampling as required in EIA reports; no study of the impact on air quality had been undertaken; and no modelling had been carried out in respect of any future projects. The cumulative impact assessment of the project was conducted on the basis of incomplete information and non-existent standards, and the MoEF granted clearance without considering these omissions. The NGT ordered a fresh review of the environmental clearance on the basis of a fresh CEIA study.

This section of the article applies Schrefler's theoretical framework to the NGT's institutional form and activities. It demonstrates the use of expertise as a continuum process by generating hypotheses about ecological events and their impacts, synthesizing information to identify knowledge and policy gaps, and providing science-based ecological insights to adjudicate on domain specific case-based problems.

The availability of a spectrum of scientific knowledge which reflects the wide range of cases heard by the NGT remains an issue yet to be addressed. A balanced bench is a *sine qua non* for the decision-making process. On the one hand, having too many experts can lead to the slowing down or even the paralysis of the decision-making process; at the same time too few experts can affect the quality of the decisions.¹⁴³ The regional benches of the NGT face the problem of having only one expert and one judicial member. The expert member may not have the expertise to handle a particular environmental issue, which could result in an unsatisfactory decision. This shortfall was echoed by Senior Lawyer 2 in Bench 4 in a case relating to forestry matters:

All of my eighteen cases that were transferred from the Bombay High Court were related to forest matters and law. I am afraid that the expert member is not acquainted with the forest law. This is a problem of regional benches where there is only one expert member, unlike the principal bench where there are six members.¹⁴⁴

This position is shared by regional bench members, Judges 3, 4 and 5,¹⁴⁵ who felt that a broader scientific perspective generates hypotheses about environmental events and

¹⁴¹ Interview, 15 July 2014.

¹⁴² N. 140 above.

¹⁴³ See, generally, L. Gruszczynski, 'The Role of Experts in Environmental and Health-Related Trade Disputes in the WTO: Deconstructing Decision-Making Processes', in Ambrus et al., n. 1 above, pp. 216–37, at 228.

¹⁴⁴ Interview, n. 75 above.

¹⁴⁵ Interviews, 29 Mar., 6 and 8 Apr. 2015.

processes, and provides an evaluative statement to compare possible options in support of decision making. They agreed that addressing this concern by consulting universities or scientific institutions would contribute to the quality of the decision making and ensure effective use of expert knowledge. In *Ashok Gabaji Kajale v. M/s Godhavari Bio-Refineries Ltd*, for example, the Tribunal appointed the Maharaja Sayajirao University of Baroda to provide expertise and a report on matters associated with groundwater pollution and ineffective industrial effluent management systems.¹⁴⁶

This section has reviewed the NGT's use of symbolic, instrumental and strategic scientific knowledge. Being a recently created adjudicatory institution, none of the three usages is currently prioritized by the NGT. It enjoys a symbiotic relationship, which collectively builds and consolidates public trust in the effectiveness of its decision-making capability as well as formulating scientifically justified policies for environmental sustainability.

7. CONCLUSION

This article seeks to add to the limited empirical studies on scientific knowledge utilization at the institutional level. It has employed the theory developed by Haas of 'epistemic communities' and, in particular, that of Schrefler and her categories that explain 'knowledge utilization'. While their work does not address courts of law, it is argued that it could be applied successfully and it thereby provides a rigorous platform on which to present and test some of the data arising out of fieldwork gathered since 2014. Against this theoretical background it is suggested that the NGT's institutional form legitimizes sustainable environmental governance by adopting reflexive practices.¹⁴⁷ By offering ecological, technological and scientific resource knowledge, the NGT experts either formulate policies or assist states with the implementation of these policies, thereby adopting both a problem-solving and policy-creation approach. The legitimacy not only includes the decision-making process (accountability and transparency), but also refers to the process through which the 'environment and public interest', as opposed to the 'economic development interest', has an influence. The adoption of investigative and stakeholder consultative procedures improves active participation through dialogue, argument and norms for eliciting factual realities and expert knowledge in order to respond to environmental problems. Nevertheless, the NGT's scientific experts and the use of their knowledge within a judicially controlled forum offers an internalized, accountability-focused approach whereby a diverse set of actors such as

¹⁴⁶ NGT Judgment, 19 May 2015. See also *Sreeranganathan K.P. v. Union of India*, n. 130 above; *Goa Paryavaran Saurakshan Sangharsh Samitee v. Sesa Goa*, NGT Order, 20 Oct. 2014; *Subhas Datta v. State of West Bengal*, NGT Order, 28 July 2015.

¹⁴⁷ J. Voss & R. Kemp, 'Sustainability and Reflexive Governance: Introduction', in J. Voss, D. Bauknecht & R. Kemp (eds), *Reflexive Governance for Sustainable Development* (Edward Elgar, 2006), pp. 3–28, at 4. Reflexive governance implies that 'one calls into question the foundation of governance itself, that is, the concepts, practices and institutions by which societal development is governed, and that one envisions alternatives and reinvents and shapes those foundations'.

governmental and local authorities, companies and multinational corporations are restrained in compromising human welfare and the ecology.

The NGT is changing environmental jurisprudence in India. This is occurring not simply through greater public access as a result of its wide definition of ‘aggrieved party’. Initially it attracted litigants because of its speed in arriving at a decision. It is enhancing public expectation through judgments and policy directions which clearly reflect a commitment to its statutory obligation to decide cases according to the principles of environmental sustainability. The composition of the bench and the involvement of technical experts has introduced a new dimension into the decision-making process. The legal lens has been expanded by the new and dramatically different composition of the bench. Science has a profound effect upon our understanding of and response to environmental issues. Science has a similar role and effect within the NGT. Independent, in-house, scientific knowledge has become part of the analysis that produces judicially binding decisions.

Nevertheless, there is evidence of growing turf wars between various interests and institutions involved in environmental regulation and environmental jurisprudence. The very success of the NGT, by its provision of decisions and enforceable remedies to aggrieved persons throughout India, has resulted in expressions of anxiety focusing on the powerful position achieved by the Tribunal within a relatively short period. It remains to be seen if a Thucydides trap has been set. As discussed, albeit briefly, the growing power and success of the NGT has resulted in concerns being expressed by powerful interests, specifically the MoEF,¹⁴⁸ state governments (such as the Chief Minister of Meghalaya¹⁴⁹) and also the concerns of the High Court of Madras, referred to above, regarding the use of the *suo motu* power.¹⁵⁰ Additionally, critical judgments have been made against the Central Ground Water Authority, Central Pollution Control Board, and various state governmental authorities.¹⁵¹

The systematic review by the NGT resulting in critical judgments – which often reflect the input of its scientific experts – has focused on economic interests and the administration of several ministries, in particular the MoEF. As a consequence, legal responses to these judgments have been in the form of appeals to the Supreme Court. By way of example, the NGT Delhi bench imposed a ban on all diesel vehicles older than 10 years and prohibited vehicles over 15 years old from plying on the capital’s roads. The response of Chief Justice H.L. Dattu to the appeal was: ‘One tribunal is trying to do something which is good for people. Let us assist them and not discourage them.

¹⁴⁸ See nn. 130–2 above.

¹⁴⁹ The Chief Minister of Meghalaya, Mukul Sangma, urged Prime Minister Modi to allow the state government to regulate the largely unregulated mining activities in view of the peculiar ground conditions in the Hill state. This intervention was the result of a wave of protests against the NGT’s ban on unscientific rat-hole mining in Meghalaya. Coal mining is a major source of livelihood for people of the state and of revenue for the government. However, the NGT decided that the unscientific, unlicensed and illegal coal mining affected water sources and the landscape, and overall it degraded the ecology: *Impulse NGO Network v. State of Meghalaya*, Order, 9 June 2014.

¹⁵⁰ N. 133 above.

¹⁵¹ *Krishan Kant Singh v. M/s Hindustan Cocacola Beverages Ltd*, NGT Order, 20 Jan. 2015; *Deshpande J. and N. Samiti v. State of Maharashtra*, NGT Judgment, 22 Apr. 2014; *Tamankar S.N. v. Union of India*, NGT Judgment, 6 May 2014.

We are not interfering with their order'.¹⁵² Subsequently, the Supreme Court upheld the NGT order to limit the entry of tourist vehicles that did not have pollution certificates to the glacial Rohtang Pass, known as the 'Crown Jewel of Tourism in India'.¹⁵³ In 2014 the Supreme Court upheld the decision of the NGT to cancel an inadequately prepared EIA. The result was that the proposed Aranmula International Airport in Kerala was stalled.¹⁵⁴

The MoEF has chosen to adopt a confrontational approach, based essentially on exercising political power and budgetary restrictions, rather than follow the statutory appeal procedure to the Supreme Court, where it has enjoyed little success. This strategy has defined its relationship with the NGT from its inception. Initially, the Delhi bench of the NGT experienced a marked shortage of infrastructure, support staff and basic amenities.¹⁵⁵ Similar problems were experienced by the benches in Bhopal, Pune and Kolkata. Ultimately, it required a direction to the government from an apex bench of the Supreme Court of India to provide the NGT and its members with appropriate accommodation and the status of High Court membership. The apex bench members, Justice Singhvi and Justice Mukhopadhyaya, required the government to ensure 'the effective functioning of the Tribunal by providing all the facilities and amenities to the judicial members ... the members of the NGT must function with dignity'.¹⁵⁶ The MoEF subsequently laid an affidavit before the Supreme Court stating, inter alia, that the NGT was not acting lawfully and had caused the government 'embarrassment'. The affidavit produced a strong negative reaction from the presiding judges, who described the claims as a 'breach of all norms of decency' and the statements as 'contemptuous'.¹⁵⁷

The turf wars continue to the present time, as is demonstrated by the setting up by MoEF of the Subramanian Committee to review the laws relating to the environment and forest protection.¹⁵⁸ Its recommendations to MoEF Minister, Prakash Javadekar, include establishing special courts at district level to deal with infringements of environmental law and an administrative (rather than judicial) tribunal to review clearances. The chairman, T.S.R Subramanian, has stated that 'the NGT cannot pick

¹⁵² 'Supreme Court Upholds NGT Order Imposing Ban on 15-Year Old Vehicles in Delhi', *The Financial Express*, 20 Apr. 2015, available at: <http://www.financialexpress.com/article/economy/supreme-court-upholds-ngt-order-imposing-ban-on-10-year-old-vehicles-in-delhi/65202>.

¹⁵³ 'Vehicles Plying in Rohtang Pass: SC Refuses to Stay NGT Order', *The Economic Times*, 26 May 2015, available at: http://articles.economictimes.indiatimes.com/2015-05-26/news/62671601_1_taxi-operators-ngt-rohtang-pass.

¹⁵⁴ K. Rajagopal, 'Supreme Court Clips Aranmula Airport's Wings', *The Hindu*, 22 Nov. 2014, available at: <http://www.thehindu.com/news/national/kerala/supreme-court-clips-aranmula-airports-wings/article6622930.ece>.

¹⁵⁵ K.S. Shrivastava, 'Green Tribunal Gets Short Shrift', *Down to Earth*, 30 June 2012, available at: <http://www.downtoearth.org.in/news/green-tribunal-gets-short-shrift-38426>.

¹⁵⁶ Supreme Court Order, 12 Sept. 2013.

¹⁵⁷ 'Green Tribunal Exceeding Its Brief: Govt to SC', *The Times of India*, 13 Sept. 2013, available at: <http://timesofindia.indiatimes.com/india/Green-tribunal-exceeding-its-brief-Govt-to-SC/articleshow/22527436.cms>.

¹⁵⁸ 'Report, High Level Committee to Review Various Acts Administered by Ministry of Environment, Forest and Climate Change', Nov. 2014, available at: http://envfor.nic.in/sites/default/files/press-releases/Final_Report_of_HLC.pdf.

up cases *suo motu*'.¹⁵⁹ Should this recommendation, currently before a Parliamentary scrutiny committee, be accepted, it will seriously reduce the NGT's powers to those associated with a review body. As Lawyer 3 stated: 'The whole idea of having technical members of the NGT was to enable them to technically review project clearances'.¹⁶⁰ Yet, the very success of the Tribunal has brought with it significant external challenges concerning which institution ultimately shapes and controls India's environmental regulation and decision making.

This article has charted and analyzed the growth of a judicial body staffed by technical experts and lawyers which functions not only as an adjudicatory body but also moves its focus beyond the traditional, individualized legal issues and associated common law remedies. Its ability to engage, produce and enforce scientifically supported policy has taken its remit beyond the courtroom and into the wider community. The NGT has impacted upon the country's environmental jurisprudence, has developed wide-ranging environmental policies, and exposed serious administrative weaknesses. As in the UK, Indian senior judges tend to be self-referential in the exercise of their decision-making powers rather than looking to the executive for directions.¹⁶¹ Nevertheless, powerful interests have expressed and demonstrated their concerns over the role and status achieved by the NGT within a brief period. The future of the NGT is uncertain and, in turn, raises questions about India's environmental direction and its progressive environmental jurisprudence.

¹⁵⁹ M. Rajshekhar, 'Will the TSR Panel Help India Manage Environment Better?', *The Economic Times*, 8 Dec. 2014, available at: <http://blogs.economictimes.indiatimes.com/Anomalocaris/will-the-tsr-panel-help-india-manage-environment-better>.

¹⁶⁰ Interview, 12 Apr. 2015.

¹⁶¹ Paterson, n. 9 above.