

MASTERING THE EVIDENCE: IMPROVING FACT FINDING BY INTERNATIONAL COURTS

BY
CYMIE PAYNE*

Although international courts increasingly must resolve transboundary conflicts over natural resources and environmental pollution, international judges have limited assistance to adequately review voluminous and complex scientific evidence that is often submitted with these disputes, potentially constraining their assessment of the factual record, and consequently undermining confidence in their judgments and the development of their jurisprudence. Special masters have been used successfully by the United States Supreme Court to manage the portion of its docket where it, like the international courts, acts as a trial court whose judgments are final and without appeal. This Article explains the master's role and how masters might provide a solution for international courts, particularly but not exclusively the International Court of Justice. It also draws on international experience to suggest a variation on the standard scope of a master. It concludes that special masters will be particularly useful and flexible aids when international courts and tribunals face extensive or highly specialized evidence and resolution of the dispute rests on resolving the parties' factual differences.

I.	INTRODUCTION	1192
II.	THE PAST AND PROSPECTS FOR THE FUTURE.....	1196
	A. <i>The Past: Working with Experts</i>	1196
	B. <i>The Pulp Mills Evidence: Voluminous, Complex, Scientific, and Technical</i>	1198
III.	THE SPECIAL MASTER	1201
IV.	FINDING THE AUTHORITY TO USE MASTERS IN INTERNATIONAL COURTS.....	1203
	A. <i>Finding Authority to Appoint a Special Master</i>	1203
	1. <i>International Court of Justice</i>	1204
	2. <i>Permanent Court of Arbitration Rules of Procedure</i>	1204
	3. <i>Commissions: United Nations Compensation Commission</i>	1205
	B. <i>Balancing the Roles of Judge and Special Master</i>	1206
	C. <i>Transparency to the Parties and to the Public</i>	1213
	D. <i>Committee of Experts, to Work After the Judgment Is Issued</i>	1217
	1. <i>International Tribunal for the Law of the Sea</i>	1217

2. Iron Rhine Railway Arbitration	1217
V. IMPLEMENTATION	1218
VI. CONCLUSION	1220

I. INTRODUCTION

Increasingly, international courts must resolve transboundary conflicts over natural resources and environmental pollution. International judges have limited assistance to adequately review voluminous and complex scientific evidence that is often submitted with these disputes, potentially constraining their assessment of the factual record, and consequently undermining confidence in their judgments and the development of their jurisprudence. It is a curious fact that they have not fully used their existing authority to acquire expert assistance. The proposition that they should obtain scientific and technical expertise is based on the assumption that there is a value to the best possible fact finding; where legal principles or political motives are more relevant to a decision, a different approach would be called for.¹

Special masters have been used successfully by the United States Supreme Court to manage its original jurisdiction docket where it, like the international courts, is a trial court whose judgments are final and without appeal.² Both the United States Supreme Court and the international courts optimize their procedures to address questions of law. To review and digest questions of fact in disputes between states of the United States over boundaries and allocation of shared watercourses, the United States Supreme Court often appoints an expert, mandating that he collect and evaluate evidence, and submit a report with conclusions to the Court.³ The

* Assistant Professor at Rutgers University, Department of Human Ecology and Camden Law School. My thanks to participants in the Lewis and Clark Law School faculty colloquium and to the Law School for extending support to me as the 2010–2011 Distinguished Environmental Law Scholar.

¹ For the International Court of Justice, the choice between these alternatives was expressed, in reference to a maritime boundary case as follows: “So we have three things: (1) political acceptability, surely it was worked at this time, perhaps it has been successful; (2) functionalism, which the Court did not take into account this time; and (3) normative development, as to which perhaps some progress was made.” *The Gulf of Maine Case: An International Discussion*, in 21 *STUDIES IN TRANSNATIONAL LEGAL POLICY* 1, 85 (Lewis M. Alexander ed., 1988) (statement from anonymous American speaker).

² The Constitution provides: “[i]n all Cases affecting Ambassadors, other public Ministers and Consuls, and those in which a State shall be a Party, the supreme Court shall have original Jurisdiction.” U.S. CONST. art. III, § 2, cl. 2. This constitutional grant of jurisdiction is modified by subsequent legislation, granting concurrent original jurisdiction to federal courts for some of these categories of disputes. See 28 U.S.C. § 1251(b)(1) (2006).

³ See *Kansas v. Colorado*, 533 U.S. 1, 5 (2001) (relying on a Special Master to take evidence and make recommendations regarding claims by Kansas that Colorado violated the Arkansas River compact); *Arizona v. California*, 530 U.S. 392, 397 (2000) (relying on and remanding to Special Master in a claim by the Quechan Tribe for increased rights to Colorado River water);

international courts could obtain the same efficient and economical assistance from special masters in many cases. This Article explains the master's role and how masters might provide a solution for international courts, particularly but not exclusively the International Court of Justice. It also draws on international experience to suggest a variation on the standard scope of a master.

The International Court of Justice, the chief court of general jurisdiction for disputes between nations, has failed to heed past calls for reform in its evidentiary practice. As a result, it is not keeping pace with its jurisprudence or its current docket of contentious cases, which includes disputes over Japanese whaling, Columbia's aerial pesticide spraying, and boundary disputes.⁴ It is sure to be presented with climate change and water resource conflicts in the future. In April 2010, the International Court of Justice was censured by its own judges for incompetence in handling technical and scientific information in the *Pulp Mills* case.⁵ *Pulp Mills* presented a dispute between Argentina and Uruguay over industrial development on a shared river.⁶ Thorough and informed review of factual evidence is of particular importance for disputes that involve natural resources and environmental quality, although the problem is not exclusive to this subject matter.⁷

The question is how judges should deal with complex and voluminous scientific or technical evidence that plays a dispositive role in the final judgment. This is quite distinct from a court's gatekeeper role in allowing scientific evidence to be submitted to juries, which has been heavily studied in conjunction with the famous United States Supreme Court *Daubert* rules of admissibility.⁸

Hinting at the difficulty of addressing the problem, another judge in the *Pulp Mills* case observed that too much emphasis on scientific evidence is

New Jersey v. New York, 526 U.S. 589, 589 (1999) (relying on a Special Master to determine the location of the boundary between the two states on Ellis Island).

⁴ Certain Activities Carried Out by Nicaragua in the Border Area (*Costa Rica v. Nicar.*), Preliminary Order (Apr. 5, 2011), available at <http://www.icj-cij.org/docket/files/150/16462.pdf>; Whaling in the Antarctic (*Austl. v. Japan*), Preliminary Order (Jul. 13, 2010), available at <http://www.icj-cij.org/docket/files/148/15985.pdf>; Aerial Herbicide Spraying (*Ecuador v. Colom.*), Preliminary Order (Jun. 25, 2010), available at <http://www.icj-cij.org/docket/files/138/15967.pdf>.

⁵ *Pulp Mills on the River Uruguay (Pulp Mills)* (Arg. v. Uru.), Joint Dissenting Opinion of Judge Al-Khasawneh and Judge Simma, ¶ 2 (Apr. 20, 2010), available at <http://www.icj-cij.org/docket/files/135/15879.pdf>; *Pulp Mills* (Arg. v. Uru.), Declaration of Judge Yusuf, ¶ 13 (Apr. 20, 2010), available at <http://www.icj-cij.org/docket/files/135/15887.pdf>.

⁶ *Pulp Mills* (Arg. v. Uru.), Judgment, ¶ 1 (Apr. 20, 2010), available at <http://www.icj-cij.org/docket/files/135/15877.pdf>.

⁷ Judge Mosk observes that in the past, "courts and arbitrators dealt with situations that were not as complex as those today. . . . Any event or transaction involves some interaction with various economic and social currents." Richard M. Mosk, *The Role of Facts in International Dispute Resolution*, in 304 RECUEIL DES COURS: COLLECTED COURSES OF THE HAGUE ACADEMY OF INTERNATIONAL LAW 2003, at 17, 22–23 (2004).

⁸ See, e.g., SHEILA JASANOFF, SCIENCE AT THE BAR: LAW, SCIENCE, AND TECHNOLOGY IN AMERICA 42–68 (1995) (discussing the role of *Daubert* and the judicial gatekeeping function).

misplaced.⁹ This response ignores the repeated calls for reform that have been made by informed observers and practitioners since the International Court of Justice began to hear environmental disputes.¹⁰

Courts do have practical concerns about delaying a case or lacking sufficient funds to obtain expert advice; or a court may have overlooked options available to it.¹¹ Cost is an important consideration for any court, and will be addressed in the discussion that follows. However, given the financial resources that are devoted to these disputes, cost is not likely the chief barrier to bringing in outside expertise. While much has been written about the difference between the civil law and common law training of international judges, attempting to explain judicial preferences for production of evidence by the court or by the parties, other reasons may better explain the international courts' infrequent recourse to assistance with technically and scientifically complex information.¹²

Judges may be concerned that by bringing in experts to assist their analyses they will relinquish their mandate to decide cases.¹³ Judge Yusuf raises and then dismisses this point in his *Pulp Mills* Declaration: “[T]he

⁹ *Pulp Mills* (Arg. v. Uru.), Separate Opinion of Judge Caçado Trindade, ¶ 3 (Apr. 20, 2010), available at <http://www.icj-cij.org/docket/files/135/15885.pdf>. Although Judge Trindade said that the Court should have obtained further evidence, he further observed that it was “conjectural” whether the Court could have reached different conclusions if it had. *Id.* ¶ 151.

¹⁰ Malgosia Fitzmaurice, *Equipping the ICJ to Deal with Environmental Law*, in 29 LEGAL ASPECTS OF INTERNATIONAL ORGANIZATION: INCREASING THE EFFECTIVENESS OF THE INTERNATIONAL COURT OF JUSTICE 398, 415 (Connie Peck & Roy S. Lee eds., 1997) (explaining that scientific and technical issues of fact are so important in the area of environmental law that the Court should make more use of its ability to call for and hear expert evidence, or engage in fact finding missions).

¹¹ In *Pulp Mills*, Judge ad hoc Vinuesa's opinion suggests that the Court may have decided not to appoint its own expert to evaluate the scientific and technical evidence because of the delay that would have been involved. *Pulp Mills* (Arg. v. Uru.), Dissenting Opinion of Judge ad hoc Vinuesa, ¶ 95 (Apr. 20, 2010), available at <http://www.icj-cij.org/docket/files/135/15893.pdf>.

¹² Cesare P.R. Romano, *The Role of Experts in International Adjudication*, at nn. 3–4 (June 5, 2009) (unpublished manuscript) (on file with Environmental Law). John Langbein has proposed a marriage of civil and common-law procedure, increasing the role of the judge in fact gathering. John H. Langbein, *The German Advantage in Civil Procedure*, 52 U. CHI. L. REV. 823, 825 (1985); see also Maarten Henket, *Taking Facts Seriously*, in INTERPRETATION, LAW AND THE CONSTRUCTION OF MEANING: COLLECTED PAPERS ON LEGAL INTERPRETATION IN THEORY, ADJUDICATION AND POLITICAL PRACTICE 109, 113–18 (Anne Wagner et al. eds., 2007) (explaining how science discovery expands evidence to be considered, but judges should be wary of scientific evidence's presumed truth). *But cf.* JOHN HENRY MERRYMAN & ROGELIO PÉREZ-PERDOMO, *THE CIVIL LAW TRADITION: AN INTRODUCTION TO THE LEGAL SYSTEMS OF EUROPE AND LATIN AMERICA* 2, 4–5 (3d ed. 2007) (suggesting that the differences are not as great as often claimed). The practice of civil and common law trained judges is not likely to be very different, as both systems allow judges to appoint experts to assist them. Gillian White identifies the use of court-appointed experts in Roman law, medieval Italian law, and French and German law from the nineteenth to the twentieth century. GILLIAN M. WHITE, *THE USE OF EXPERTS BY INTERNATIONAL TRIBUNALS* 15–20 (1965); see also *id.* at 20–28 (finding similar practices in the English courts).

¹³ See James R. Acker, *Social Science in Supreme Court Criminal Cases and Briefs: The Actual and Potential Contribution of Social Scientists as Amici Curiae*, 14 LAW & HUM. BEHAV. 25, 31–32 (1990) (describing how the Supreme Court cites “traditional legal authority” discussing social science findings instead of referring directly to social science sources).

question arises as to whether there is a risk that the resort to an expert opinion may take away the role of the judge as the arbiter of fact and therefore undermine the Court's judicial function? My answer is in the negative."¹⁴

However, scrutiny of other cases and judges' frank comments in extrajudicial writing suggests that for some, concerns about erosion of judicial authority are a central factor.¹⁵ These concerns may recede if a deeper analysis of the appropriate roles of judges and experts in the examination of scientific and technological evidence leads to effective guidelines that would direct the efforts of the expert.

Alternatively, if the court's own expert advisor appears to master the evidence too forcefully, the parties may resent the loss of control of their case. If the court's expert provides yet another equally plausible opinion, it may merely re-situate the "battle of the experts" from the parties to the court itself. Further, if the court rules contrary to the opinion of its own expert, it may seem to have built its judgment on a weak foundation. Thus, there may be several reasons why courts may prefer to leave explanation of the evidence to the parties.¹⁶

Undoubtedly, judges should not hand over their authority to experts. However, they can seek assistance in understanding and assessing the evidence. Judges can also sharpen their focus on the nature of judging technical and scientific evidence. The excess authority of an expert that is feared might be avoided by clearly distinguishing the nature of the questions that scientific and technical experts are asked from the ultimate questions before the court.

This Article first summarizes the problem as it was presented in the *Pulp Mills* case and provides a brief perspective on the past use of experts in International Court of Justice cases and prospects for the future docket. It then looks at the appointment, powers, and mandate of special masters used by the United States Supreme Court. Next, the authority of the International Court of Justice to appoint a special master is considered and recommendations are made. Finally, this Article concludes that special masters will be particularly useful and flexible aids when international courts and tribunals face extensive or highly specialized evidence and resolution of the dispute rests on resolving the parties' factual differences.

¹⁴ *Pulp Mills* (Arg. v. Uru.), Declaration of Judge Yusuf, ¶ 10 (Apr. 20, 2010), available at <http://www.icj-cij.org/docket/files/135/15887.pdf>.

¹⁵ See, e.g., discussion *infra* Part II.A (detailing two International Court of Justice decisions in which the judges used experts for specific tasks rather than lending assistance to analyze evidence).

¹⁶ See *infra* notes 50–58 and accompanying text.

II. THE PAST AND PROSPECTS FOR THE FUTURE

A. The Past: Working with Experts

In the past, the International Court of Justice has rarely invoked its authority to use experts. It appointed its own experts in its first case, *Corfu Channel*,¹⁷ and later in the dispute between the United States and Canada over their mutual boundary in the rich fishing grounds of the Gulf of Maine (where, not incidentally, both Canada and the United States issued oil and gas permits).¹⁸ In these cases, the experts' tasks were narrow in scope: collecting evidence, viewing the site of the dispute, interviewing witnesses, and assisting the Court in producing the documentation of its work.¹⁹ While more limited than the role of a special master, they performed some aspects of the master's job.

In *Corfu Channel*, the Court appointed a committee of three Naval officers, of nationalities different from the disputants, to resolve certain disputed issues of fact.²⁰ It used its authority under Articles 48 and 50 of the Statute of the Court and Article 57 of the Rules.²¹ Among the eight questions experts were asked to resolve were whether mines that damaged British ships had been laid in the Corfu Channel recently, and the location and type of mines that caused the damage.²² Their answers allowed the Court to conclude that the ships were damaged by newly laid mines in Albanian territorial waters.²³ As their initial report was inconclusive, the Court asked the committee to make a visit to the site of the incident for the purpose of "verifying, completing, and, if necessary, modifying the answers given in their report."²⁴ This entailed interviewing witnesses and making site inspections to determine whether Albanian coastguards could have observed surreptitious mine laying, and even included an experiment with a boat at night.²⁵ Both reports, and the mission to Yugoslavia and Albania, were accomplished between December 17, 1948 and February 8, 1949,²⁶ fairly

¹⁷ *Corfu Channel* (U.K. v. Alb.), Order, 1948 I.C.J. 124, 124 (Dec. 17) (regarding appointment of expert); *Corfu Channel* (U.K. v. Alb.), Order, 1949 I.C.J. 237, 238 (Nov. 19) (regarding expert compensation assessment).

¹⁸ *Delimitation of the Maritime Boundary in the Gulf of Maine Area (Gulf of Maine I)* (Can./U.S.), Order, 1984 I.C.J. 165, 166 (Mar. 30) (appointing an expert). Its predecessor, the Permanent Court of International Justice, used an expert to fix the amount of compensation at the indemnities stage of the *Chorzów Factory* case. *Factory at Chorzów* (Ger. v. Pol.), Judgment, 1928 P.C.I.J. (ser. A) No. 13, at 51–52 (Sept. 13); *The Gulf of Maine Case: An International Discussion*, *supra* note 1, at 5.

¹⁹ See *Gulf of Maine I* (Can./U.S.), Order, 1984 I.C.J. at 166; *Corfu Channel* (U.K. v. Alb.), Judgment, 1949 I.C.J. 244, 247 (Dec. 15) (regarding compensation); *Corfu Channel* (U.K. v. Alb.), Order, 1949 I.C.J. 237, 238 (Nov. 19) (regarding compensation assessment); *Corfu Channel* (U.K. v. Alb.), Order, 1948 I.C.J. 124, 124–27 (Dec. 17) (regarding appointment of expert).

²⁰ *Corfu Channel* (U.K. v. Alb.), Order, 1948 I.C.J. at 124–27.

²¹ *Id.* at 124.

²² *Id.* at 124–27.

²³ *Corfu Channel* (U.K. v. Alb.), Judgment, 1949 I.C.J. at 14, 16, 21–22.

²⁴ *Id.* at 9.

²⁵ *Id.* at 14, 21.

²⁶ *Id.* at 9.

promptly. The judges questioned the experts, and the parties commented, orally and in writing, on their reports and responses to the Court's questions.²⁷ The Court concluded that it could not "fail to give great weight to the opinion of the Experts who examined the locality in a manner giving every guarantee of correct and impartial information."²⁸ This allowed the Court to determine that the mines could not have been laid without the knowledge and consent of the Albanian government.²⁹

In *Delimitation of the Maritime Boundary in the Gulf of Maine Area (Gulf of Maine)* case,³⁰ the parties requested that the International Court of Justice Chamber appoint a technical expert to assist it in preparing the description and charts of the boundary.³¹ Rather than asking the International Court of Justice to provide delimitation rules for the parties to apply, they wanted a specific line determined by the court to put an end to a longstanding and contentious history.³² Their request outlined the parameters of the appointment: the parties would jointly nominate the expert; the Registrar would provide the pleadings to the expert as they were distributed to the other party; the expert would attend the oral proceedings; and the expert would consult with the Chamber at its discretion.³³ The Chamber duly appointed a technical expert, noting its authority under Articles 48 and 50 of the Statute of the Court.³⁴ He made a solemn declaration as to his impartiality and the confidentiality of documents he might see.³⁵ His technical report was attached to the judgment; it seems clear that he provided the expertise to apply the rules chosen by the Chamber to the land in question, and to describe the boundary line in accurate technical language.³⁶ It may be noted that counsel for the United States in the case later observed that it was "disappointing that the Chamber did not address many of the disputed factual issues[] . . . [and avoided] becoming embroiled in the historic, environmental, or geological issues;" the Chamber based its delimitation of the boundary on geographic features.³⁷

These two examples demonstrate that the International Court of Justice has used experts to assist with limited, specific tasks. It has not asked for assistance to interpret, summarize, or critique scientific or technical evidence. The next example illustrates circumstances where a broader mandate could help the court.

²⁷ *Id.*

²⁸ *Id.* at 21.

²⁹ *Id.* at 22.

³⁰ *Delimitation of the Maritime Boundary in the Gulf of Maine Area (Gulf of Maine II)* (Can./U.S.), Judgment, 1984 I.C.J. 246 (Oct. 12).

³¹ *Id.* at 256, 347 (appointing Commander (ret.) Peter Bryan Beazley of the British Navy).

³² *The Gulf of Maine Case: An International Discussion*, *supra* note 1, at 19–20.

³³ *Gulf of Maine I* (Can./U.S.), Order, 1984 I.C.J. 165, 166–67 (Mar. 30).

³⁴ *Id.* at 165–66.

³⁵ *Id.* at 166–67.

³⁶ *See Gulf of Maine II* (Can./U.S.), Judgment, 1984 I.C.J. at 347.

³⁷ *The Gulf of Maine Case: An International Discussion*, *supra* note 1, at 3.

B. The Pulp Mills Evidence: Voluminous, Complex, Scientific, and Technical

On April 20, 2010, the International Court of Justice announced its judgment in the dispute between Argentina and Uruguay (the parties) concerning Uruguay's authorization of industrial development on the banks of the Uruguay River, which forms the international boundary between the two countries.³⁸ The Court rejected Argentina's claim that Uruguay breached substantive treaty obligations to monitor and prevent pollution of the water and riverbed, basing this part of its judgment on the evidence submitted to it by the parties.³⁹

In evaluating Uruguay's compliance with its obligations to prevent pollution of the river under the 1975 Statute of the River Uruguay (1975 Statute),⁴⁰ the Court considered a straightforward question of conduct (failure to notify and consult with Argentina) and a more complex question of result (actual pollution of the river water).⁴¹ The review of "a vast amount of factual and scientific material"⁴² submitted by the parties to demonstrate pollution or lack thereof became a matter of controversy between judges on the Court. As some of those judges recalled, this was not the first time the Court's fact finding was questioned.⁴³

An easy issue for the Court was the determination of what standards were required by the 1975 Statute for pollution prevention. The Court found that Article 41 of the 1975 Statute requires the parties to adopt domestic pollution prevention regulations and measures "in keeping, where relevant, with the guidelines and recommendations of international technical bodies."⁴⁴ It was able to compare such international guidelines and recommendations with standards jointly adopted by the parties,⁴⁵ and regulations adopted by each party in its domestic law to determine the applicable standards.⁴⁶

A more difficult issue lay in determining whether Uruguay had satisfied its obligation "[t]o protect and preserve the aquatic environment and, in particular, to prevent its pollution," as required by Article 41 of the 1975

³⁸ *Pulp Mills* (Arg. v. Uru.), Judgment (Apr. 20, 2010), available at <http://www.icj-cij.org/docket/files/135/15877.pdf>.

³⁹ *Id.* ¶¶ 236, 265.

⁴⁰ Statute of the River Uruguay (1975 Statute), Uru.-Arg., Feb. 26, 1975, 1295 U.N.T.S. 340.

⁴¹ *Pulp Mills* (Arg. v. Uru.), Judgment, ¶¶ 112–22, 229, 238–59.

⁴² *Id.* ¶ 165.

⁴³ See Cymie R. Payne, *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, 105 AM. J. INT'L L. 94, 99 (2011). The International Court of Justice is normally composed of 15 permanent judges. Judges ad hoc may be appointed if a judge of the nationality of a party to a case is not on the bench. Statute of the International Court of Justice, Art. 31(2)–(3), June 26, 1945, 59 Stat. 1055, 33 U.N.T.S. 993. In the *Pulp Mills*, Judges ad hoc Torres Bernárdez and Vinuesa were selected by the parties; two of the permanent bench did not vote in this case, so the total number of judges was 14. *Pulp Mills* (Arg. v. Uru.), Judgment, at 5.

⁴⁴ *Pulp Mills* (Arg. v. Uru.), Judgment, ¶¶ 196, 200 (quoting 1975 Statute, Uru.-Arg., art. 41, Feb. 26, 1975, 1982 U.N.T.S. 339).

⁴⁵ The Statute established a bilateral mechanism to provide joint management of the river—CARU. 1975 Statute, Uru.-Arg., ch. XIII, Feb. 26, 1975, 1982 U.N.T.S. 339.

⁴⁶ *Pulp Mills* (Arg. v. Uru.), Judgment, ¶¶ 223, 225.

Statute.⁴⁷ Specifically, the Court determined that the parties had an obligation to prevent pollution by adopting appropriate rules and measures in their domestic legal systems, then acting to enforce them and exercise administrative control with due diligence.⁴⁸ “Pollution” was defined in the 1975 Statute as “the direct or indirect introduction by man into the aquatic environment of substances or energy which have harmful effects,” while “harmful effects” was defined in the Administrative Commission of the River Uruguay (CARU) Digest as “any alteration of the water quality that prevents or hinders any legitimate use of the water, that causes deleterious effects or harm to living resources, risks to human health, or a threat to water activities including fishing or reduction of recreational activities.”⁴⁹

In consequence, the Court decided it had to determine whether the concentrations of pollutants discharged by the mill were within regulatory limits established by the parties and whether their impact on the river’s water quality was deleterious.⁵⁰ Over the years, from the first filing of Argentina’s application in 2006 to the final judgment in 2010, the Botnia pulp mill was constructed and began to operate.⁵¹ Evidence was submitted at different phases, ultimately including several studies on six months of pulp mill operations carried out by Argentina, Uruguay, Botnia, and an environmental consulting firm hired by the International Finance Corporation (which guaranteed part of the financing for the pulp mill).⁵²

The Court’s judgment included a compound-by-compound discussion of the impact of discharges on levels of dissolved oxygen, total phosphorus, phenolic substances, nonylphenols and nonylphenoethoxylates, dioxins, and furans.⁵³ The parties had differed sharply on how the data was to be interpreted.⁵⁴ The Court took upon itself the task of weighing and evaluating the data, “rather than the conflicting interpretations given to it by the Parties or their experts and consultants.”⁵⁵ This is the point at which the Court might have benefited from assistance.

The parties’ differences over levels of dissolved oxygen seem to have depended entirely on the possible misreading of a report. Argentina claimed

⁴⁷ *1975 Statute*, Uru.-Arg., art. 41, Feb. 26, 1975, 1982 U.N.T.S. 339. The Court also recalled another statement it had made in a previous case: “The existence of the general obligation of States to ensure that activities within their jurisdiction and control respect the environment of other States or of areas beyond national control is now part of the corpus of international law relating to the environment.” *Pulp Mills* (Arg. v. Uru.), Judgment, ¶ 193 (citations omitted).

⁴⁸ *Pulp Mills* (Arg. v. Uru.), Judgment, ¶ 197.

⁴⁹ *Id.* ¶ 198; *1975 Statute*, Uru.-Arg., art. 41, Feb. 26, 1975, 1982 U.N.T.S. 339 (citations omitted).

⁵⁰ *See Pulp Mills* (Arg. v. Uru.), Judgment, ¶¶ 227, 265.

⁵¹ *Id.* ¶ 37.

⁵² *Id.* ¶ 226.

⁵³ *Id.* ¶ 237–59.

⁵⁴ For example, Uruguay remarked that a report of the IFC’s experts on the plant’s performance “renders moot Argentina’s insinuation . . . that the IFC’s consultants should have used a different loading calculation when they modelled [sic] the impact of the plant.” *Pulp Mills* (Arg. v. Uru.), Rejoinder of Uruguay, n.524 (July 29, 2008), available at <http://www.icj-cij.org/docket/files/135/15432.pdf>.

⁵⁵ *Pulp Mills* (Arg. v. Uru.), Judgment, ¶ 236; *Pulp Mills* (Arg. v. Uru.), Separate Opinion of Judge Keith, ¶ 11 (Apr. 20, 2010), available at <http://www.icj-cij.org/docket/files/135/15881.pdf>.

that a Uruguayan report showed a level of dissolved oxygen, which is beneficial to aquatic life, lower than the CARU standard.⁵⁶ Uruguay replied that Argentina misread the report, which stated figures for the “demand for oxygen” (“oxidabilidad”) and not its opposite, “dissolved oxygen” (“oxígeno disuelto”).⁵⁷ The Court found that Argentina’s allegation “remains unproven.”⁵⁸ An expert reviewing the evidence would have been able to resolve this question by either examining the documents, advising the court to request further information, or given the authority, requesting additional information herself.

The Court’s review of the submissions on dioxin and furan levels provides another example, in this case highlighting the lack of data available and the difficulty for Argentina in carrying its burden of proof. Argentina alleged that, in the six months the pulp mill had been operational, studies showed increasing levels of these two toxic byproducts of the process.⁵⁹ Uruguay responded that the increase could not be linked to Botnia’s mill, given the multitude of industries operating nearby.⁶⁰ Uruguay also stated that the levels detected in the mill effluent were not measurably higher than the baseline levels in the river.⁶¹ The Court concluded the evidence was not sufficient to link the increase in dioxins and furans to the pulp mill operation.⁶²

The phosphorus levels were also the subject of conflicting claims about the effect of the pulp mill’s discharges on the overall water quality of the river.⁶³ The Court had before it data already collected, generally by Uruguay, for a project that had been in operation for six months, while Argentina pointed to the occurrence of an algal bloom that it claimed contradicted Uruguay’s conclusions.⁶⁴

In addition to their strong views that the Court should have retained outside experts to assist it in evaluating the competing claims of the parties, dissenting Judges Al-Khasawneh and Simma thought the Court should have carried out a comprehensive risk assessment to resolve whether the project in question would result in significant impairment of navigation, the regime of the river, or its water quality, as required by Article 12 of the 1975 Statute.⁶⁵ They stated that the Court should have evaluated the risk with “a preventive rather than compensatory logic” because of the “often

⁵⁶ *Pulp Mills* (Arg. v. Uru.), Judgment, ¶ 238.

⁵⁷ *Id.*

⁵⁸ *Id.* ¶ 239.

⁵⁹ *Id.* ¶ 258.

⁶⁰ *Id.*

⁶¹ *Id.*

⁶² *Id.* ¶ 259.

⁶³ *Id.* ¶ 240–50.

⁶⁴ *Id.* ¶¶ 243, 249.

⁶⁵ *Pulp Mills* (Arg. v. Uru.), Joint Dissenting Opinion of Judges Al-Khasawneh and Simma, ¶¶ 20–22 (Apr. 20, 2010), available at <http://www.icj-cij.org/docket/files/135/15879.pdf>; Statute of the River Uruguay, Uru.-Arg., art. 12, ch. XV, Feb. 26, 1975, 1295 U.N.T.S. 339 (authorizing either party to the treaty to submit such claims to the International Court of Justice if they are unable to resolve the dispute through the Administrative Committee of the River Uruguay).

irreversible character of damage to the environment.”⁶⁶ A special master, with expertise in industrial water pollution, would be well suited to conduct the further analysis and risk assessment that Al-Khasawneh and Simma proposed.

III. THE SPECIAL MASTER

The special master who will be most helpful in clarifying complex scientific and technical evidence for international courts will have expertise in the subject matter as well as a good understanding of the courts’ legal function and procedures. The United States Supreme Court has used masters with subject matter expertise primarily in water disputes and boundary cases.⁶⁷ In other matters, the United States Supreme Court’s masters are more typically retired or senior judges, whose tasks include mastering voluminous evidence to improve the efficiency of the proceedings.⁶⁸ For an international court’s purposes, the primary reason to use a special master is not to save the court time, but to provide a skilled and impartial guide to the evidence submitted.⁶⁹ Accordingly, the master will have specialized expertise relevant to the issues for which he has been engaged.

The special master’s ability to perform some of the fact-finding functions of a trial court led the United States Supreme Court to appoint a master in almost every case where it had original jurisdiction in the period between 1961 and 1992.⁷⁰ The Supreme Court observed that although

⁶⁶ *Pulp Mills* (Arg. v. Uru.), Joint Dissenting Opinion of Judges Al-Khasawneh and Simma, ¶¶ 22–24 (quoting Gabčíkovo-Nagymaros Project (Hung./Slovk.), 1997 I.C.J. 7, ¶ 140 (Sept. 25)).

⁶⁷ See *The Original Jurisdiction of the United States Supreme Court*, 11 STAN. L. REV. 665, at app. (1958–1959); Vincent L. McKusick, *Discretionary Gatekeeping: The Supreme Court’s Management of Its Original Jurisdiction Docket Since 1961*, 45 ME. L. REV. 185, at app. C (1993).

⁶⁸ *Ex parte Peterson*, 253 U.S. 300, 307, 313 (1920) (defining the master’s role, called the “auditor,” to make a preliminary investigation of complex facts, described as a “tentative trial” by the Supreme Court; to define the issues in controversy; to form a judgment and to express an opinion on the matters in dispute; and to make a report to the fact-finder at the cost of the parties).

⁶⁹ Mark A. Fellows & Roger S. Haydock, *Federal Court Special Masters: A Vital Resource in the Era of Complex Litigation*, 31 WM. MITCHELL L. REV. 1269, 1271 (2005) (“Judicial masters should not be used in common, routine cases. These cases need to be resolved without the services of a paid special master.”).

⁷⁰ See, e.g., *Nebraska v. Wyoming*, 325 U.S. 589, 596, 656 (1945) (court “generally” adopted Master’s findings to allocate the North Platte River); *Colorado v. Kansas*, 320 U.S. 383, 389, 391 (1943) (same; Arkansas River); *Washington v. Oregon*, 297 U.S. 517, 519 (1936) (same; Walla Walla River tributary); *New Jersey v. New York*, 283 U.S. 336, 343, 346 (1931) (court accepted Special Master’s findings in total, rejected injunction requested by New Jersey); *Connecticut v. Massachusetts*, 282 U.S. 660, 664, 674 (1931) (court appointed special master and authorized him to take and report to the Court the evidence together with his findings of fact, conclusions of law, and recommendations for a decree); Mark Davis, *Preparing for Apportionment: Lessons from the Catawba River*, 2 SEA GRANT L. & POL’Y J. 44, 45–46 (2009) (special master appointed in original jurisdiction case to administer the apportionment of the Catawba river); Peter A. Fahmy, *Colorado v. New Mexico II: Judicial Restraint in the Equitable Apportionment of*

“auditors” had long been used for post-trial proceedings in English and colonial common law courts, they had not been used for pre-trial review in law until the Massachusetts legislature introduced the practice in 1818.⁷¹ Masters are now authorized by the Federal Rules of Civil Procedure and some comparable state measures.⁷² The United States Supreme Court establishes the scope of a master’s functions in the order appointing him. Federal Rule 53 indicates the parameters of the position.⁷³

A master takes on some of the authority of the judge, but acts under a very particular mandate. Where there is an “exceptional condition,” “the need to perform an accounting or resolve a difficult computation of damages,” or pre- or post-trial matters must be resolved, the master may actually hold trial proceedings and either make or recommend findings of fact to the judge.⁷⁴ While the court may direct otherwise, the master’s basic authorities include the ability to “regulate all proceedings; take all appropriate measures to perform the assigned duties fairly and efficiently;” and exercise the same authority possessed by the appointing court “to compel, take, and record evidence.”⁷⁵

Although the master possesses potentially extensive powers, she is always subordinate to the court.⁷⁶ Accordingly, the court may “adopt or affirm, modify, wholly or partly reject or reverse, or resubmit . . . with instructions” the master’s orders, reports, and recommendations.⁷⁷ Moreover, the court must give the parties notice and a chance to be heard before the court acts on a master’s “order, report, or recommendations.”⁷⁸

While the courts typically give special masters a great deal of deference,⁷⁹ the court reviews objections to the master’s findings of fact and conclusion of law de novo.⁸⁰ However, the parties may stipulate that review of factual findings will be for clear error only or that the master’s findings

Interstate Waters, 62 DENV. U. L. REV. 857, 860 (1985) (special master appointed to assess equitable apportionment request).

⁷¹ *Ex parte* Peterson, 253 U.S. at 308–09. Moreover, for their cases in equity, the United States federal courts made extensive use of special masters for a wide range of purposes, with and without the consent of the parties. See Fellows & Haydock, *supra* note 69, at 1272.

⁷² FED. R. CIV. P. 53; see, e.g., MASS. R. OF CIV. P. 53.

⁷³ See FED. R. CIV. P. 53.

⁷⁴ FED. R. CIV. P. 53(a)(1)(B)–(C).

⁷⁵ FED. R. CIV. P. 53(c)(1).

⁷⁶ See Fellows & Haydock, *supra* note 69, at 1270, 1275.

⁷⁷ FED. R. CIV. P. 53(f).

⁷⁸ *Id.*

⁷⁹ Fahmy, *supra* note 70, at 857 (“Because the Court uncharacteristically disregarded the Special Master’s report, the case is noteworthy and marks the sole instance in which the Court has totally rejected the Special Master’s findings in an equitable apportionment action involving interstate waters.”).

⁸⁰ FED. R. CIV. P. 53(f)(3)–(4).

will be final.⁸¹ The master's rulings on procedural matters are reviewable for abuse of discretion, unless the appointing order dictates otherwise.⁸²

The order appointing the master defines the parameters within which she will work. The court must specify the master's duties, when *ex parte* communications are permitted, what documentation of the master's activities must be kept, specific procedures including those for time limits, filings, and review of the master's orders, findings, and recommendations, and the method of compensation for the master.⁸³ The interests of the parties must be considered in the appointment of a special master. Before an appointment order is issued, the court must give notice to the parties and provide them with the opportunity to express their views.⁸⁴ The parties must consent to the scope of the master's duties.⁸⁵

The Federal Rules recognize that the appointment of a master is likely to cause additional financial expense to the parties, a factor which must also be considered by the court when it decides whether to appoint the master.⁸⁶ This is because the parties may be required to pay the master's compensation themselves, unless there is a "fund or subject matter of the action within the court's control."⁸⁷ The Supreme Court's decision in *Ex parte Peterson*⁸⁸ accepts that it is possible for the court to charge expenses of an auditor to the parties without their consent, just as the court may charge other costs to the parties, following "usage long continued and confirmed by implication from provisions in many statutes."⁸⁹

A party may suggest candidates for the position.⁹⁰ The same conflict of interest standards that would require disqualification of a judge apply to the special master.⁹¹

IV. FINDING THE AUTHORITY TO USE MASTERS IN INTERNATIONAL COURTS

A. Finding Authority to Appoint a Special Master

Special masters are a kind of court-appointed expert, and most international courts have the authority to appoint experts independently although there are variations in the relationship between the court-appointed expert, the judges, and the parties. For example, the World Trade

⁸¹ FED. R. CIV. P. 53(f)(3). This alternative is only available where the parties have consented to the appointment of a master or where the master is appointed to provide effective and timely assistance with pre- and post-trial matters under rule 53(a)(1)(A) or (C), respectively. FED. R. CIV. P. 53(a)(1), (f)(3).

⁸² FED. R. CIV. P. 53(f)(5).

⁸³ FED. R. CIV. P. 53(b), (d)–(e).

⁸⁴ FED. R. CIV. P. 53(b)(1).

⁸⁵ FED. R. CIV. P. 53(a)(1)(A).

⁸⁶ FED. R. CIV. P. 53(a)(3); *see* *Fellows & Haydock*, *supra* note 69, at 1271.

⁸⁷ FED. R. CIV. P. 53(g)(2).

⁸⁸ 253 U.S. 300 (1920).

⁸⁹ *Id.* at 316–17.

⁹⁰ FED. R. CIV. P. 53(b)(1).

⁹¹ *Id.* at 53(a)(2), (b)(3).

Organization's Dispute Settlement Body pioneered a worthy example of fact finding with court-appointed experts that addresses many of the concerns shared by parties and judges.⁹² The following summarizes the authorities already existing in three examples of courts and commissions that could be used to appoint a master.

1. *International Court of Justice*

Article 50 of the Statute of the International Court of Justice provides broad appointment authority that would encompass the role of a special master: "The Court may, at any time, entrust any individual, body, bureau, commission, or other organization that it may select, with the task of carrying out an enquiry or giving an expert opinion."⁹³ "Carrying out an enquiry" might encompass a range of activities, from directing a team of subject matter experts to review evidence submitted by parties to undertaking site visits, and even conducting experiments like the test used by the *Corfu Channel* expert committee to determine whether a boat could lay mines at night undetected by the Albanian coastguards. If the Court had decided that it needed more evidence of contamination of the Rio Uruguay, Article 50 of the Statute would have allowed the appointment of a master to review the evidence or to visit the site.

This apparently broad authority to engage assistance is constrained by Article 67 of the Rules of the Court, which provides the procedural rule.⁹⁴ The interests of the parties are protected by the Rules, which require the Court to listen to their comments on the proposed enquiry or expert opinion, and ensure that, "[e]very report or record of an enquiry and every expert opinion shall be communicated to the parties, which shall be given the opportunity of commenting upon it."⁹⁵

2. *Permanent Court of Arbitration Rules of Procedure*

In arbitration, the parties set their own rules; often they use standard rules such as those provided by the Permanent Court of Arbitration (PCA).⁹⁶ The standard procedural rules for state-to-state arbitrations and the environmental alternative rules provide a means for the arbitral tribunal to appoint its own experts.⁹⁷ The expert is endowed with broad powers to

⁹² See *infra* text accompanying notes 151–80; PETER VAN DEN BOSSCHE, *THE LAW AND POLICY OF THE WORLD TRADE ORGANIZATION* 265–67 (2005).

⁹³ Statute of the International Court of Justice art. 50, June 26, 1945, 59 Stat. 1055, 33 U.N.T.S. 993.

⁹⁴ *Id.* art. 67.

⁹⁵ *Id.*

⁹⁶ See Permanent Court of Arbitration (PCA), *Optional Rules for Arbitrating Disputes Between Two States*, art. 1 (1992), available at <http://www.pca-cpa.org/upload/files/2STATENG.pdf>.

⁹⁷ *Id.* art. 27; PCA, *Optional Rules for Arbitration of Disputes Relating to Natural Resources and/or the Environment*, art. 27 (2001), available at <http://www.pca-cpa.org/upload/files/ENVIRONMENTAL.pdf>.

request information, documents, or goods of the parties, subject to the tribunal's decision in case of dispute.⁹⁸ The parties have the right to inspect the expert's terms of reference, reports, and documents on which the expert has relied. Parties are also entitled to comment on the report and to examine the expert in a hearing.⁹⁹ While these rules would authorize appointment of a special master, it would be helpful to arbitrating parties to have a model rule they could incorporate that would define the scope and powers of the master.

3. Commissions: United Nations Compensation Commission

Commissions established to deal with liability for disasters or postwar damage have a great deal of flexibility in establishing their procedural rules, although they are likely to follow templates established by the International Court of Justice, the Permanent Court of International Arbitration, the Iran-United States Claims Tribunal, or the United Nations Compensation Commission (UNCC). The UNCC made extensive use of experts to assist the review of more than 2.6 million claims for losses resulting from Iraq's invasion and occupation of Kuwait, including humanitarian claims for the millions of displaced people and the extensive damage to the environment of Kuwait and neighboring countries.¹⁰⁰ The UNCC rules provided that panels of commissioners could "request additional information from any other source, including expert advice, as necessary."¹⁰¹ Expert assistance in many fields was essential to this program and outside consultants were used extensively.¹⁰² However, the UNCC was not structured to allow for the use of special masters. Nonetheless, in other contexts a special master would be well-served by following the approach used to organize the team of expert consultants retained by the environmental claims section.

Claimants for environmental restoration submitted massive amounts of scientific and technical data and analysis in many different subject matter areas—coastal contamination, loss of fisheries and seabed resources from oil spills, public health damage from oil fire pollution, and heavy contamination of the desert with "tarcrete" from oil well fires. To complement the legal expert staff, the UNCC hired a consulting firm that in turn sought out and retained independent experts in the necessary scientific

⁹⁸ PCA, *Optional Rules for Arbitrating Disputes Between Two States*, art. 27.

⁹⁹ The PCA provides lists of technical experts. Experts are identified on the basis of nationality. PCA, *Optional Rules for Arbitration of Disputes Relating to Natural Resources and/or the Environment*, Annex 8 (2011), available at <http://www.pca-cpa.org/upload/files/20110615%20SP%20Sci%20EXP.pdf>.

¹⁰⁰ Cymie R. Payne, *Environmental Claims in Context, in GULF WAR REPARATIONS AND THE UN COMPENSATION COMMISSION* 1, 12, 14, 20 (Cymie R. Payne & Peter H. Sand eds., 2011).

¹⁰¹ U.N. Compensation Comm., Governing Council Decision Approving Provisional Rules for Claims Procedure, art. 36(b), U.N. Doc. S/AC.26/1992/10 (June 26, 1992).

¹⁰² See, e.g., U.N. Compensation Comm., Report and Recommendations Made by the Panel of Commissioners Concerning the First Instalment of "F3" Claims, ¶¶ 8, 30, 107, 124, 134 196, 418, U.N. Doc. S/AC.26/1999/24 (Dec. 9, 1999) (illustrating that outside expert consultants worked closing with the Panel of Commissioners of the Governing Council of the UNCC and frequently provided advice, opinions, and recommendations to the panel).

and technical disciplines.¹⁰³ The leadership of the consulting firm chose external scientific, engineering, and economic experts from academic and research institutions around the globe who were “able to appreciate cultural differences and communicate across cultural boundaries, who were unbiased and fair-minded.”¹⁰⁴

While the UNCC did not use special masters, the leaders of the expert teams for the environmental claims worked in some respects as a master might: coordinating the activities of specialists, reviewing technical evidence submitted by both parties, conducting literature reviews, and reporting to the panel of commissioners. However, they did not have the authorities that many special masters are granted, for example, to hold mini-trials or to directly communicate with the parties. In establishing the rules of procedure for any commission anticipating complex scientific and technical submissions, provision should be made to allow for appointment of special masters.

B. Balancing the Roles of Judge and Special Master

It was noted at the outset that many judges are concerned that court-appointed experts may intrude on their prerogatives. A similar concern would apply to a special master. Judges are appointed to apply law to disputes, make findings of fact, and render a decision.¹⁰⁵ Judge Keith observed that a central function of courts is to resolve “those disputes of facts which the court must decide as it determines whether a party before it is in breach of its legal obligations.”¹⁰⁶ This is no easy task—Judge Mosk frankly said that as an arbitrator, he was not certain of the facts, but had to rely on “presumptions, burdens of proof and intuition.”¹⁰⁷

Stemming from this is a constant concern—how a judge can keep a firm hand on the exercise of judicial authority while making good use of a specialist’s professional judgment.¹⁰⁸ The responsibility to judge cannot be

¹⁰³ Michael T. Huguenin et al., *Assessment and Valuation of Damage to the Environment*, in GULF WAR REPARATIONS AND THE UN COMPENSATION COMMISSION, *supra* note 100, at 67, 81–82.

¹⁰⁴ *Id.* at 81.

¹⁰⁵ Cesare Romano makes a distinction between the purpose of a domestic court to find objective truth and that of an international court to settle a dispute in his contribution to the Aix Colloquium. See *Romano*, *supra* note 12, at 2–3. This thesis would find detractors in the community of critical legal theory with respect to domestic courts, and the very criticisms of the International Court of Justice elicited in the *Pulp Mills* case reveal a far from unified view in the international law community. See *supra* notes 4–5 and accompanying text.

¹⁰⁶ *Pulp Mills* (Arg. v. Uru.), Separate Opinion of Judge Keith, ¶ 2 (Apr. 20, 2010), available at <http://www.icj-cij.org/docket/files/135/15881.pdf>.

¹⁰⁷ Mosk, *supra* note 7, at 25.

¹⁰⁸ *Computer Assocs. Int’l, Inc. v. Altai, Inc.*, 982 F.2d 693, 713–14 (2d Cir. 1992) (“In this case, Dr. Davis[s] opinion was instrumental in dismantling the intricacies of computer science so that the court could formulate and apply an appropriate rule of law. While Dr. Davis[s] report and testimony undoubtedly shed valuable light on the subject matter of the litigation, Judge Pratt remained, in the final analysis, the trier of fact. The district court’s use of the expert’s assistance, in the context of this case, was entirely appropriate.”).

delegated to a master; for example, Gillian White suggested that improper delegation of the judicial function could nullify the award in arbitration.¹⁰⁹

The fact that international judges must make factual determinations as a central part of their mandate is incontrovertible. For example, the Statute of the International Court of Justice, Article 36(2) refers to “the jurisdiction of the Court in all legal disputes concerning . . . the existence of any fact which, if established, would constitute a breach of an international obligation.”¹¹⁰ Again, Article 53 refers to the Court’s obligations; when one party does not defend its case, “[t]he Court must, before doing so, satisfy itself, not only that it has jurisdiction in accordance with Articles 36 and 37, but also that the claim is well founded in fact and law.”¹¹¹ Finally, under Article 61, revisions of judgments can only be made when based on “the discovery of some fact of such a nature as to be a decisive factor, which fact was, when the judgment was given, unknown to the Court and also to the party claiming revision, always provided that such ignorance was not due to negligence.”¹¹²

This is notwithstanding Judge Cançado Trindade’s remark, criticizing both the majority and dissenting judges with respect to the *Pulp Mills* case, that the Court’s role was “to dwell to a greater extent on legal principles than on chemical substances.”¹¹³ While legal principles may suffice in assessing obligations of conduct such as whether an international standard was integrated into a domestic legal system, a close reading of evidence reporting and analyzing chemical data is necessary to determine whether a disputant has breached a measurable obligation such as preventing actual contamination of a river by an industrial waste product.¹¹⁴

¹⁰⁹ WHITE, *supra* note 12, at 163–64.

¹¹⁰ Statute of the International Court of Justice art. 36(2), June 26, 1945, 59 Stat. 1055, 1060, 33 U.N.T.S. 993.

¹¹¹ *Id.* art. 53.

¹¹² *Id.* art. 28. Similarly, although the constitutional provisions of the International Tribunal for the Law of the Sea do not specify determinations of fact in defining its jurisdiction, the default provision states that the Tribunal must satisfy itself, *inter alia*, that the claim is well founded in fact and law. Statute of the International Tribunal for the Law of the Sea art. 28, Dec. 10, 1982, 1833 U.N.T.S. 397.

¹¹³ *Pulp Mills* (Arg. v. Uru.), Separate Opinion of Judge Cançado Trindade, ¶ 3 (Apr. 20, 2010), available at <http://www.icj-cij.org/docket/files/135/15885.pdf>. Judge Mosk commented on the tendency of international arbitrators and judges to focus on legal rather than factual aspects of their cases. Mosk, *supra* note 7, at 21–23. *But see* Richard B. Bilder, *The Fact/Law Distinction in International Adjudication*, in *FACT-FINDING BEFORE INTERNATIONAL TRIBUNALS: ELEVENTH SOKOL COLLOQUIUM* 95, 98 (Richard B. Lillich ed., 1991).

¹¹⁴ Jessica Gabel argues that members of the legal professions should be better educated in science and math, pointing to the poor quality of legal analysis of forensic evidence in criminal cases. Jessica Gabel, *Forensiphilia: Is Public Fascination with Forensic Science a Love Affair or Fatal Attraction*, 36 NEW ENG. J. ON CRIM. & CIV. CONFINEMENT 233, 236 (2010). William Purrington, on the other hand, observes, “It would never do for the court and jury to retire with a medical encyclopaedia and ‘cram up.’” WILLIAM ARCHER PURRINGTON, *THE NATURE OF EXPERT TESTIMONY, AND SOME DEFECTS IN THE METHODS BY WHICH IT IS NOW ADDUCED IN EVIDENCE* 4 (1899), available at http://galenet.galegroup.com/servlet/MOML?dd=0&locID=lacc_legal&d1=19004739200&srchtp=a&c=1&an=19004739200&d2=1&docNum=F3703797680&h2=1&af=RN&d6=1&ste=10&dc=tiPG&stp=Author&d4=0.33&d5=d6&ae=F103797680.

Faced with complex data and competing expert interpretations, the court must focus on its job “to evaluate the claims of parties before it and whether such claims are sufficiently well-founded so as to constitute evidence of a breach of a legal obligation” by assessing “the relevance and the weight of the evidence produced in so far as is necessary for the determination of the issues which it finds it essential to resolve.”¹¹⁵ Legal standards such as a “reasonable threshold” or “significance” of damage to the environment implicate both scientific information and legal and policy judgments that challenge the judge and expert to maintain their proper roles.¹¹⁶ However, with a clear understanding of the judge’s role and well-tailored guidance to the experts, even these difficult duties can benefit from specialist advisors.

By obtaining assistance, the court does not take the place of a party in satisfying its burden of proof. The *Oscar Chinn* case¹¹⁷ from the Permanent Court of International Justice (PCIJ) reveals the complexity of even this point in the context of an international tribunal—a dissenting judge stated that the court had an obligation to exercise its Article 50 authority to appoint an expert, in part because “the facts to be established all transpired outside the territory of the Party adducing them.”¹¹⁸ In that case, the PCIJ refused the United Kingdom’s request for the court to order an expert inquiry to resolve factual questions, which would have been dispositive of Belgium’s possible breach of its international responsibility.¹¹⁹ The court ruled that there was sufficient evidence to reach this decision.

Let us turn to the role of the expert special master. An expert, in one definition, “is only a person specially experienced, skilled, or learned in some art or science; or, as some would have it, in any department of knowledge or skill, wherein the formation of a sound opinion necessitates a previous course of study and experience beyond the lines followed by the average man.”¹²⁰ An expert master can review, weigh, and report to the court on fact or opinion evidence, and can also provide explanations of terms, theories, and other information that is not controversial but which may be important for the court to understand.¹²¹ Yet, the master should not be asked to determine the ultimate questions that have been put to the court by the parties; this is the same limitation that is applied to court-appointed experts.¹²²

¹¹⁵ *Pulp Mills* (Arg. v. Uru.), Joint Dissenting Opinion of Judges Al-Khasawneh and Simma, ¶¶ 4–5 (Apr. 20, 2010), available at <http://www.icj-cij.org/docket/files/135/15879.pdf> (quoting 3 SHABTAI ROSENNE, *THE LAW AND PRACTICE OF THE INTERNATIONAL COURT 1920–2005*, at 1039 (4th ed. 2006)).

¹¹⁶ *Id.* at ¶¶ 4, 14, 17, 19–20.

¹¹⁷ *Oscar Chinn* (U.K. v. Belg.), 1934 P.C.I.J. (ser. A/B) No. 63 (Dec. 12).

¹¹⁸ *Id.* at 147 (separate opinion of Judge van Eysinga).

¹¹⁹ WHITE, *supra* note 12, at 104–07.

¹²⁰ PURRINGTON, *supra* note 114, at 4.

¹²¹ *Id.* at 5.

¹²² WHITE, *supra* note 12, 11–12 (“[T]he expert’s report or opinion is to be used by the tribunal strictly as a basis for its *own education* of the facts in relation to the legal issues.” (emphasis in original)). However, United States evidentiary rules allow an expert to testify on

The type of assistance that subject matter experts can offer is varied. Examples from United States federal courts are illustrative:

- Commenting on the acceptability of scientific methods that underlie expert opinions proffered by the parties;¹²³
- “[D]ismantling the intricacies [of a technical field] so that the court could formulate and apply an appropriate rule of law;”¹²⁴ and
- Assisting with “problems of unusual difficulty, sophistication, and complexity, involving something well beyond the regular questions of fact and law with which judges must routinely grapple.”¹²⁵

Possibly, a judge’s worst nightmare is to misstate facts in a judgment. Courts have, in fact, sought final review of a draft judgment by an expert to provide some assurance that technical terms are correctly used, references are properly cited, and judicial conclusions do not fly in the face of fact or theory.¹²⁶

When an expert is asked to provide a professional judgment, there is a risk that her advice may exceed the technical boundary to which it is properly confined and may instead incorporate legal and policy judgments that are properly left for the judge.¹²⁷ Judge Yusuf distinguished the role of the judge from the role of the expert in several points:

First, it is not for the expert to weigh the probative value of the facts, but to elucidate them and to clarify the scientific validity of the methods used to establish certain facts or to collect data. Secondly, the elucidation of facts by the experts is always subject to the assessment of such expertise and the determination of the facts underlying it by the Court. Thirdly, the Court need not entrust the clarification of all the facts submitted to it to experts in a wholesale manner. Rather, it should, in the first instance, identify the areas in

the “ultimate issue.” EDWARD J. BRUNET & MARTIN H. REDISH, SUMMARY JUDGMENT: FEDERAL LAW AND PRACTICE 258 (3d ed., 2006).

¹²³ *Renaud v. Martin Marietta Corp.*, 749 F. Supp. 1545, 1552–53 (D. Colo. 1990), *aff’d*, 972 F.2d 304 (10th Cir. 1992); E. Donald Elliott, *Toward Incentive Based Procedure: Three Approaches for Regulating Scientific Evidence*, 69 B.U. L. REV. 487, 508 (1989) (suggesting that in cases with “substantial doubt” regarding the scientific integrity of testimony by a party’s expert, the court should appoint a “peer review expert learned in the relevant fields to testify at trial concerning whether the principles, techniques, and conclusions by the experts for the parties would be generally accepted as valid by persons learned in the field”).

¹²⁴ *Computer Assocs. Int’l, Inc. v. Altai, Inc.*, 982 F.2d 693, 714 (2d Cir. 1992).

¹²⁵ *Reilly v. United States*, 863 F.2d 149, 157 (1st Cir. 1988).

¹²⁶ In the *Japan-Agricultural Products II* dispute at the World Trade Organization, the panel asked its experts to review the final report. Panel Report, *Japan—Measures Affecting Agricultural Products*, ¶¶ 6.116–119, WT/DS76/R (Oct. 27, 1998); see Acker, *supra* note 13, at 38–40, 42 (pointing out the problem of errors in statements of the science in judgments, for example, Judge White’s concurrence in *Illinois v. Gates*, 462 U.S. 213 (1983)).

¹²⁷ “WTO judges should be careful not to attempt (through experts or otherwise) to become the high arbiters of scientific truth in the world trading system. Such a view would directly conflict with the Appellate Body’s stated appreciation of legitimate scientific differences and of its own zone of competence.” David Winickoff et al., *Adjudicating the GM Food Wars: Science, Risk, and Democracy in World Trade Law*, 30 YALE J. INT’L L. 81, 112 (2005).

which further fact-finding or elucidation of facts is necessary before resorting to the assistance of experts.¹²⁸

Professors Holly Doremus and A. Dan Tarlock recommend guidelines for outside scientific review committees in a domestic regulatory context that comprise an appropriate mandate for special masters. The strength of their approach is that it asks the expert to identify the components from which an expert opinion is constructed. Adapting their suggestions to international courts, a special master could be asked, as part of her report, to:

- “[E]valuate the degree of scientific support” for a particular position presented by each party;
- “[I]dentify gaps or weaknesses” in the data provided and recommend to the court whether relevant data is available, has been omitted by the parties, and should be obtained;
- “[H]ighlight what interpretive judgments were made” and how the proponent of the evidence “dealt with uncertainty”;
- “[Q]uantify, at least roughly, the likelihood of errors associated with” accepting or rejecting evidence; and
- “[C]onsider what value additional data would carry” for the judicial decision.¹²⁹

The special master can assist the court in evaluating the experts presented by the parties, cutting through the confusions of a “battle of the experts.”¹³⁰ For the purposes of this discussion, it is assumed that witnesses are “completely honest and sincere in their views and that the expert witnesses arrived at their conclusions as the integral result of their high technical skill,” however, “[i]t must not be overlooked that witnesses who give opinion evidence are sometimes unconsciously influenced by their environment, and their evidence colored, if not determined, by their point of view.”¹³¹

¹²⁸ *Pulp Mills* (Arg. v. Uru.), Declaration of Judge Yusuf, ¶ 10 (Apr. 20, 2010), available at <http://www.icj-cij.org/docket/files/135/15887.pdf>.

¹²⁹ Holly Doremus & A. Dan Tarlock, Conference, *Science, Judgment, and Controversy in Natural Resource Regulation*, 26 PUB. LAND & RESOURCES L. REV. 1, 34 (2005).

¹³⁰ JEAN-FRANÇOIS POUURET & SÉBASTIEN BESSON, COMPARATIVE LAW OF INTERNATIONAL ARBITRATION § 6.4.3.4 (2d ed. 2007) (“[T]he Anglo-Saxon model raises the risk of a ‘battle of the experts,’ who deliver contradictory technical opinions to the arbitral tribunal which it is incapable of disentangling . . .”).

¹³¹ *Trail Smelter* (U.S. v. Can.), 3 R.I.A.A. 1905, 1922 (1935). In the *Trail Smelter*, each government was able to designate a scientist to advise the tribunal under Article II, and the tribunal was able to retain investigators under Articles VIII and X of the Special Agreement of 1935. *Id.* at 1907–09. The tribunal hired two technical consultants who were, in fact, the scientists appointed by the Governments, taking leave from their position as Advisers to the tribunal. They were to supervise a meteorologist who, the tribunal directed, would be employed by the Smelter. *Id.* at 1934. In addition, the tribunal undertook site visits. *Id.* at 1912. Compare this complacent view of experts with William Archer Purrington’s quotations from British and American judges to the effect that experts “come with such bias that hardly any weight can be

There are a number of ways to ensure that an expert witness's biases are exposed, such as qualification of the witness and examination by the bench and the opposing party. The International Court of Justice in the *Pulp Mills* case censured the parties for presenting their technical experts to the Court as counsel, in an effort to avoid being subject to examination.¹³² Judge Greenwood said:

For a person who is going to speak of facts within his own knowledge or to offer his expert opinion on scientific data to address the Court as counsel is to circumvent these provisions of the Rules and, in the words of the late Sir Arthur Watts, unacceptably to blur the distinction between evidence and advocacy.¹³³

There are no rules of admissibility of evidence in international courts; the practice is deferential to the sovereign States that are the disputants before these courts.¹³⁴ As a result, although admissibility of expert opinion is an important and controversial question in the United States, it has very little relevance to international courts. Thus, the United States Supreme Court guidelines for admissibility of scientific evidence stated in the *Daubert* case¹³⁵ do not have direct relevance. However, they suggest several factors that international judges might bear in mind in determining “whether the reasoning or methodology underlying the testimony [of the expert] is scientifically valid and of whether [it] properly can be applied to the facts in issue.”¹³⁶ The *Daubert* factors include whether the evidence is the result of sound scientific methodology; whether it has been tested, subjected to peer review, and published; whether it has a known or potential error rate; and

given to their evidence.” PURRINGTON, *supra* note 114, at 2. However, Purrington himself is less derogatory of experts. *Id.*

¹³² *Pulp Mills* (Arg. v. Uru.), Judgment, ¶ 167 (Apr. 20, 2010), available at <http://www.icj-cij.org/docket/files/135/15877.pdf> (“Regarding those experts who appeared before it as counsel at the hearings, the Court would have found it more useful had they been presented by the Parties as expert witnesses under Articles 57 and 64 of the Rules of Court, instead of being included as counsel in their respective delegations. The Court indeed considers that those persons who provide evidence before the Court based on their scientific or technical knowledge and on their personal experience should testify before the Court as experts, witnesses or in some cases in both capacities, rather than counsel, so that they may be submitted to questioning by the other party as well as by the Court.”).

¹³³ *Pulp Mills* (Arg. v. Uru.), Separate Opinion of Judge Greenwood, ¶ 27 (Apr. 20, 2010), available at <http://www.icj-cij.org/docket/files/135/15889.pdf> (citing Arthur Watts, *Enhancing the Effectiveness of Procedures of International Dispute Settlement*, in 5 MAX PLANCK YEARBOOK OF UNITED NATIONS LAW 21, 29–30 (Jochen A. Frowein & Rüdiger Wolfrum eds., 2001)).

¹³⁴ See MOJTABA KAZAZI, BURDEN OF PROOF AND RELATED ISSUES: A STUDY ON EVIDENCE BEFORE INTERNATIONAL TRIBUNALS 3, 6 (1995) (“Contrary to municipal law, there are no detailed and complex rules of evidence in international procedure, nor is there a supreme power to impose such rules on States as parties to international proceedings.”).

¹³⁵ *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 593–94 (1993).

¹³⁶ *Id.* at 592–93. In *General Electric Co. v. Joiner*, 522 U.S. 136 (1997), the Court stated that abuse of discretion is the appropriate standard to apply when reviewing a court's decision to admit or exclude expert testimony under *Daubert*. *Id.* at 138–39. Applying this standard, the Court found that the experts' opinions were not sufficiently supported by the animal studies on which they relied. *Id.* at 144–45.

whether it has attracted widespread acceptance within a relevant scientific community.¹³⁷

As courts were wrestling with the *Daubert* factors, Professor Beecher-Monas argued that “even nonscientists” can learn to critique science if they are willing to learn about the probabilistic and analogy-based reasoning that underlies all scientific disciplines.¹³⁸ She recommended five requirements that she argued should be applied by judges to determine the admissibility of scientific evidence:

- Identify and understand the underlying theory and hypothesis;
- Examine all available information in concert;
- Fill information gaps with scientifically justifiable default assumptions;
- Assess whether the methodology—laboratory, observational, and statistical methods—conform to generally acceptable practices in the field; and
- Make a probabilistic assessment of the strength of the links between theory, assumptions, methodology, and the conclusion proposed.¹³⁹

This would certainly be a challenging task for legal specialists, but it would be well within the capability of an expert special master. Beecher-Monas relies on the adversarial process to develop and challenge the evidence.¹⁴⁰ For example, she suggests that in one case it was acceptable for the court to fail to test a plaintiff expert’s methodology because there is an extensive literature on causation relating to a different form of the same chemical and because the discovery and cross-examination processes available to the opponent should have surfaced methodological flaws.¹⁴¹ Similarly, in the International Court of Justice *Continental Shelf* (Libya/Malta) case “cross-examination of an expert witness established the inaccuracy of the reproduction of a scientific article filed by the adverse party.”¹⁴²

Beecher-Monas purports to be talking about how judges should look at scientific evidence, but in fact her thesis relies heavily on the behavior of the parties to clarify (or not) technical or scientific complexity.¹⁴³ Professor Scott Brewer’s theory of “intellectual due process” places even more

¹³⁷ *Daubert*, 509 U.S. at 593–94.

¹³⁸ Erica Beecher-Monas, *The Heuristics of Intellectual Due Process: A Primer for Triers of Science*, 75 N.Y.U. L. REV. 1563, 1568 (2000); see also ERICA BEECHER-MONAS, EVALUATING SCIENTIFIC EVIDENCE: AN INTERDISCIPLINARY FRAMEWORK FOR INTELLECTUAL DUE PROCESS 6, 8 (2007) (describing a framework of probabilistic reasoning to guide legal actors, who are nonscientists, in formulating “scientifically adequate legal arguments”).

¹³⁹ Beecher-Monas, *supra* note 139, at 1571.

¹⁴⁰ See BEECHER-MONAS, *supra* note 139, at 7, 14–16, 18, 33–35.

¹⁴¹ Beecher-Monas, *supra* note 139, at 1644.

¹⁴² Shabtai Rosenne, *Updates to Law and Practice of the International Court of Justice (1920-1996)*, 1 L. & PRAC. INT’L CTS. & TRIBUNALS 129, 142 (2002).

¹⁴³ See Beecher-Monas, *supra* note 139, at 1595.

stringent demands on the judge to have “epistemic competence.”¹⁴⁴ This is precisely the role that a master can fill, relieving the bench of unrealistic demands.

C. Transparency to the Parties and to the Public

Practicing attorneys, when confronted with international courts that obtain expert advice using methods that exclude party examination of the expert, universally decry the practice as lacking in appropriate transparency and parties’ control over their dispute.¹⁴⁵ Similar concerns apply to special masters.

As a matter of institutional practice, in domestic courts, parties have a role in appointing special masters.¹⁴⁶ By comparison, we have seen that international courts’ rules generally provide for parties to review the court-appointed expert’s qualifications, receive the expert’s written report and comment on it, be present at the expert’s oral statements, and even provide for the possibility of examining the expert.¹⁴⁷

Often these guarantees of party access are not present, and experts may deliberate with the court *in camera*; may be retained against the parties’ preferences; and in some cases their written and oral communications may be entirely confidential as between the expert and the judge.¹⁴⁸ The International Court of Justice, for example, has hired experts in the past to assist in its maritime delimitation cases as Registry staff.¹⁴⁹ At least in some cases:

[A]dopting such a practice would deprive the Court of the above-mentioned advantages of transparency, openness, procedural fairness, and the ability for the Parties to comment upon or otherwise assist the Court in understanding the evidence before it. These are concerns based not purely on abstract principle, but on the good administration of justice.¹⁵⁰

¹⁴⁴ Scott Brewer, *Scientific Expert Testimony and Intellectual Due Process*, 107 YALE L.J. 1535, 1681 (1998).

¹⁴⁵ Cf. RUTH MACKENZIE ET AL., MANUAL ON INTERNATIONAL COURTS AND TRIBUNALS 12 (2d ed. 2010) (accepting advice without attorney confrontation invites criticism of lack of transparency).

¹⁴⁶ See FED. R. CIV. P. 53(a)(1)(A), (b)(1) (stating that a party must give consent for duties outside of exceptional time-saving functions and that a party may recommend and dispute appointment of a master).

¹⁴⁷ See *supra* text accompanying notes 92–98.

¹⁴⁸ See PCA, *Optional Rules for Arbitrating Disputes Between Two States*, art. 27(4) (1992), available at <http://www.pca-cpa.org/upload/files/2STATENG.pdf> (incorporating the rules in article 25, which state that hearings are held in camera); *id.* art. 27(2)–(4) (establishing procedures by which parties can object to appointed expert reports); *id.* art. 27(4) (allowing parties to interrogate experts only after so requesting).

¹⁴⁹ See, e.g., *Gulf of Maine II* (Can./U.S.), Judgment, 1984 I.C.J. 246, ¶ 8 (Oct. 12).

¹⁵⁰ *Pulp Mills* (Arg. v. Uru.), Joint Dissenting Opinion of Judge Al-Khasawneh and Judge Simma, ¶ 14 (Apr. 20, 2010), available at <http://www.icj-cij.org/docket/files/135/15879.pdf>.

The World Trade Organization's use of experts is exemplary in some respects.¹⁵¹ World Trade Organization panels have made use of non-party experts in four disputes.¹⁵² The procedure adopted by the World Trade Organization in its first experience with appointing experts was intended to "respect general principles of law" and to ensure that the process of selecting experts would be "transparent, avoid conflicts of interest, affirm the integrity of the dispute settlement process and aid public confidence in the outcome of the dispute."¹⁵³ The parties participated in each stage, retaining significant control over the process.

Under Article 13 of the Understanding on Rules and Procedures Governing the Settlement of Disputes (DSU), a World Trade Organization panel has a "right to seek information and technical advice from any individual or body which it deems appropriate[] . . . and may consult experts to obtain their opinion."¹⁵⁴ When a panel wishes to request information or advice from an individual or body within the jurisdiction of a World Trade Organization Member State, that State's rights and interests are protected by the Article 13 requirement that the panel inform the Member before initiating such contacts, and confidential information is to be released only with the Member's permission.¹⁵⁵ Specific rules in Appendix 4 of the DSU are provided for the panel to establish an expert review group and to request an advisory report from it.¹⁵⁶

The World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) provides for the use of experts in case of a dispute. SPS Agreement Article 11.2 states that, "[i]n a dispute under this Agreement involving scientific or technical issues, a panel should seek advice from experts chosen by the panel in consultation with

¹⁵¹ Cf. Winickoff et al., *supra* note 127, at 111 (discussing the institutional flexibility of WTO panels in the selection and use of experts). *But cf.* John Kingery, Commentary, *Operation of Dispute Settlement Panels*, 31 LAW & POL'Y INT'L BUS. 665, 666-67 (2000) (commentary of a senior legal officer of the WTO regarding the practice of using experts in WTO panels, which is quite time-consuming and can delay the tight time schedules these cases are supposed to observe).

¹⁵² Panel Report, *Australia—Measures Affecting Importation of Salmon*, ¶¶ 6.1-6.6, WT/DS18/R (June 12, 1998) (under SPS Agreement, at instigation of panel, no objection from parties, same procedure as *Hormones* but without party appointments of experts); Panel Report, *Australia—Measures Affecting Importation of Salmon: Recourse to Article 21.5 by Canada*, ¶¶ 6.1-6.5, WT/DS18/RW (Feb. 18, 2000) (under SPS Agreement, at panel's instigation, parties' comments resulted in exclusion of one expert preferred by panel, otherwise similar procedure used in original dispute); Panel Report, *Japan—Measures Affecting Agricultural Products*, ¶¶ 6.1-6.4, WT/DS76/R (Oct. 27, 1998) (similar procedure to that taken in *Hormones*); Panel Report, *Japan—Measures Affecting the Importation of Apples*, ¶¶ 6.1-6.14, WT/DS245/R (July 15, 2003) (under SPS Agreement, similar procedure to *Hormones*).

¹⁵³ Panel Report, *European Communities—Measures Concerning Meat and Meat Products (Hormones): Complaint by the United States*, ¶ VI.2, WT/DS26/R/USA (Aug. 18, 1997).

¹⁵⁴ Understanding on Rules and Procedures Governing the Settlement of Disputes, art. 13, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 2, 1869 U.N.T.S. 401, 410, available at http://www.wto.org/english/docs_e/legal_e/28-dsu_e.htm.

¹⁵⁵ *Id.*

¹⁵⁶ *Id.* at app. 4.

the parties to the dispute.”¹⁵⁷ The panel can act on its own initiative or at the request of either party. It can consult international organizations or it can appoint experts to an advisory group.

When the World Trade Organization Dispute Settlement Body actually appointed experts for the first time, it used a variation of these procedures, developed in consultation with the parties to a long-running dispute in which the European Community has defended its trade restrictions on the import of meat containing certain animal growth hormones from the United States and Canada.¹⁵⁸ This procedure has been followed in subsequent disputes. The so-called “Hormones Dispute” turned on the question of whether the EC ban was “based on scientific principles and on a risk assessment” and whether there was sufficient scientific evidence that the presence of the hormones poses a risk to human, animal, or plant health to support the ban, as required by the SPS Agreement.¹⁵⁹ The panel did not follow the rules and procedures set out in the DSU Appendix 4, but created its own ad hoc rules.¹⁶⁰

The panel consulted with the parties and decided to appoint experts to assist in its determination of whether there was a scientific basis for the EC ban.¹⁶¹ It retained the experts as individuals, rather than as an advisory group as indicated in the SPS Agreement.¹⁶² The Codex Commission secretariat was

¹⁵⁷ Agreement on the Application of Sanitary and Phytosanitary Measures, art. 11.2, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1867 U.N.T.S. 493, 498; see Winickoff et al., *supra*, note 127, at 111–12. Petros Mavroidis argues that World Trade Organization Dispute Settlement Body organs, including panels and the Appellate Body, have broad discretion to establish procedures necessary to fulfill their functions; he does not extend this beyond procedural rights and obligations to substantive rights. Petros C. Mavroidis, *No Outsourcing of Law? WTO Law as Practiced by WTO Courts*, 102 AM. J. INT’L L. 421, 424 (2008); see, e.g., Understanding on Rules and Procedures Governing the Settlement of Disputes, art. 3.2 Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 2, 1869 U.N.T.S. 401, available at http://www.wto.org/english/docs_e/legal_e/28-dsu_e.htm (“Recommendations and rulings of the [Dispute Settlement Body] cannot add to or diminish the rights and obligations provided in the covered agreements.”).

¹⁵⁸ Panel Report, *European Communities—Measures Concerning Meat and Meat Products (Hormones): Complaint by the United States*, ¶¶ I.1, II.26, VI.5, 8.7–8.8, WT/DS26/R/USA (Aug. 18, 1997).

¹⁵⁹ *Id.* ¶ 6.1; see also Panel Report, *Australia—Measures Affecting Importation of Salmon: Recourse to Article 21.5 by Canada*, ¶ 6.2, WT/DS18/RW (Feb. 18, 2000) (denying the parties the right to nominate any expert); Panel Report, *Japan—Measures Affecting The Importation Of Apples*, ¶ 6.2, WT/DS245/R (June 23, 2005) (determining need for expert advice, and after consulting with the parties, creating working procedures to be used when consulting with scientific and technical experts); Appellate Body Report, *Japan—Measures Affecting Agricultural Products*, ¶ 129, WT/DS76/AB/R (Feb. 22, 1999) (“A panel is entitled to seek information and advice from experts and from any other relevant source it chooses, pursuant to Article 13 of the DSU and, in an SPS case, Article 11.2 of the SPS Agreement, to help it to understand and evaluate the evidence submitted and the arguments made by the parties, but not to make the case for a complaining party.” (emphasis omitted)).

¹⁶⁰ Appellate Body Report, *European Communities—Measures Concerning Meat and Meat Products (Hormones)*, WT/DS26/AB/R, WT/DS48/AB/R, ¶ 148 (Jan. 16, 1998).

¹⁶¹ Panel Report, *European Communities—Measures Concerning Meat and Meat Products (Hormones): Complaint by the United States*, ¶ VI.1, WT/DS26/R/USA (Aug. 18, 1997).

¹⁶² *Id.* ¶ 8.7.

also consulted by the panel, as provided in SPS Agreement Article 11.2.¹⁶³ The panel sought referrals of experts from two international organizations, the Codex Commission and the International Agency for Research on Cancer.¹⁶⁴ The panel selected three of the recommended experts, taking into account the parties' comments on their curricula vitae, and each party nominated an expert of its own choosing.¹⁶⁵

The five experts served in their personal capacities as advisers to the panel.¹⁶⁶ The panel underscored that it had chosen to diverge from SPS Agreement Article 11 and use individual experts because it was not looking for a consensus position, but welcomed multiple views.¹⁶⁷ Although the European Commission had requested that the experts nominated by the panel not be nationals of the parties to ensure impartiality, the individual experts were in fact from the European Commission (France and Germany), the United States, Australia, and Canada.¹⁶⁸ The European Commission also requested that the experts be "scientists with proven expertise in the use of hormones in general and for animal growth promotion" but without conflicts of interest from significant past or present ties with the industry.¹⁶⁹ The European Commission was concerned that the Codex secretariat's small pool of recommendations ignored a large international community of experts.¹⁷⁰ The appointment of the fifth expert by the panel was intended to address this.¹⁷¹

The scope of the expert work was limited to specific questions that the panel prepared in consultation with the parties.¹⁷² The European Commission again indicated its views that it was important to distinguish the role of the expert from that of the panel members and the parties.¹⁷³ The information sought from the experts was "to further the Panel's understanding of the scientific facts relevant to the dispute" and had to relate directly to the scientific issues.¹⁷⁴ They were not to address legal issues or interpretation of the World Trade Organization agreements, which was the purview of the panel;¹⁷⁵ or purely factual information, which the parties were obligated to supply.¹⁷⁶

The parties' written and oral submissions to the panel were provided to the experts and the written responses of the experts and the Codex secretariat were distributed to the parties.¹⁷⁷ An oral proceeding with the

¹⁶³ *Id.* ¶ 8.8.

¹⁶⁴ *Id.*

¹⁶⁵ *Id.* ¶¶ VI.6, VI.7.

¹⁶⁶ *Id.* ¶ 8.9

¹⁶⁷ *Id.*

¹⁶⁸ *Id.* ¶¶ VI.3, VI.10.

¹⁶⁹ *Id.* ¶ VI.3

¹⁷⁰ *Id.*

¹⁷¹ *Id.*

¹⁷² *Id.* ¶ VI.8.

¹⁷³ *Id.* ¶ VI.3.

¹⁷⁴ *Id.* ¶ VI.4.

¹⁷⁵ *Id.*

¹⁷⁶ *Id.*

¹⁷⁷ *Id.* ¶ VI.8.

panel, parties, and experts followed the exchange of written materials to discuss the responses and provide additional information.¹⁷⁸ The transparency of the process extended to the reproduction of the panel's questions and the experts' responses in the panel report.¹⁷⁹

D. Committee of Experts, to Work After the Judgment Is Issued

Two recent cases have tried the innovative approach of directing the parties to establish a committee of experts to work through difficult, fact-intensive technical issues *after* the proceedings are completed.¹⁸⁰ The tribunal's judgment set the parameters of the committee's work.¹⁸¹

1. International Tribunal for the Law of the Sea

A dispute over land reclamation by Singapore in the Straits of Johor resulted in the Tribunal deciding that the work posed a risk to the marine environment in and around the Straits. The Tribunal ordered Singapore and Malaysia to establish a group of independent experts with the mandate to conduct a study and to propose measures to deal with any adverse effects of the land reclamation, and to prepare an interim report on the work in a particular area of concern.¹⁸²

2. Iron Rhine Railway Arbitration

An arbitral tribunal was established for a dispute between the Netherlands and Belgium over the reactivation of the Iron Rhine Railway.¹⁸³ The questions put to the arbitrators were primarily of a legal nature based on interpretation of 1839 and 1873 treaties, which gave Belgium certain rights of access via rail to pass through the Netherlands.¹⁸⁴ Technical and scientific issues were raised by the need for the tribunal to allocate costs for service upgrades and the cost of mitigating harm to nature reserves under Dutch, European Union, and international law. The award was notable for stating that, "where development may cause significant harm to the environment there is a duty to prevent, or at least mitigate, such harm" as a matter of

¹⁷⁸ *Id.* ¶ VI.9.

¹⁷⁹ *Id.* ¶ VI.11–VI.241.

¹⁸⁰ Land Reclamation by Singapore in and Around the Straits of Johor (Malay. v. Sing.), Case No. 12, Order of Oct. 8, 2003, 7 ITLOS 10; Kingdom of Belgium v. Kingdom of Netherlands, 27 R.I.A.A. 41 (Perm. Ct. Arb. 2005).

¹⁸¹ Land Reclamation by Singapore in and Around the Straits of Johor (Malay. v. Sing.), Case No. 12, Order of Oct. 8, 2003, 7 ITLOS 10, 27 (describing the scope of considerations of the expert committees); Kingdom of Belgium v. Kingdom of Netherlands, 27 R.I.A.A. 41, 50–57 (Perm. Ct. Arb. 2005) (same).

¹⁸² Land Reclamation by Singapore in and Around the Straits of Johor (Malay. v. Sing.), Case No. 12, Order of Oct. 8, 2003, 7 ITLOS 10, 27.

¹⁸³ Kingdom of Belgium v. Kingdom of Netherlands, 27 R.I.A.A. 41, 44 (Perm. Ct. Arb. 2005).

¹⁸⁴ *Id.* at 47–48, 50–57.

general international law.¹⁸⁵ Belgium disputed the environmental protection measures that the Netherlands required; rejected responsibility to pay for them; and argued that, if it were obligated to pay, the Netherlands could “require only the least costly and/or onerous” measures.¹⁸⁶

As the tribunal notes, “[t]he mere invocation of such matters does not, of course, provide the answers in this arbitration to what may or may not be done, where, by whom and at whose costs.”¹⁸⁷ So, questions of fact and a sound understanding of the environmental considerations at issue enter into the legal proceeding. Specifically, the Netherlands “sought to identify objectively, through expert reports,” appropriate measures to protect the environment from impacts of the work to bring the railway line into service.¹⁸⁸

However, the arbitral tribunal was able to determine a set of principles to guide the allocation of costs without needing to “investigate questions of considerable scientific complexity” as to the specific measures required for appropriate environmental protection.¹⁸⁹ Instead, it directed the parties to establish a committee of independent experts to determine the relevant costs, and set a strict time frame for the committee to make its findings.¹⁹⁰ The arbitral tribunal did *not* make use of its authority to appoint experts or to ask for special briefing from the parties.¹⁹¹

V. IMPLEMENTATION

As we have seen, the International Court of Justice and the World Trade Organization are examples of dispute settlement bodies that have existing authority to appoint an expert who can function as a special master, while arbitral and ad hoc tribunals can choose to include a provision for a master when they elaborate their rules. The questions remaining are what kinds of cases are best suited to the use of a master; who is best suited to the role; and what authorities should they be assigned?

After a case is filed, the court should consider its needs for assistance with technical and scientific information at the same time it prepares its order fixing time limits for the filing of initial written pleadings. As Judge Yusuf advised the International Court of Justice, an international court seized of a case that presents potentially complex technical or scientific evidence should “develop . . . a clear strategy which would enable it to assess the need for an expert opinion at an early stage of its deliberations on a case.”¹⁹² This comment emphasizes the need to take account of timing in

¹⁸⁵ *Id.* at 66 (referencing Gabčíkovo-Nagymaros Project (Hung./Slovk.), 1997 I.C.J. 7, ¶ 140 (Sept. 25)).

¹⁸⁶ *Id.* at 50, 70.

¹⁸⁷ *Id.* at 67.

¹⁸⁸ *Id.* at 70.

¹⁸⁹ *Id.* at 120–21.

¹⁹⁰ *Id.*

¹⁹¹ *Id.*

¹⁹² *Pulp Mills* (Arg. v. Uru.), Declaration of Judge Yusuf, ¶ 14 (Apr. 20, 2010), available at <http://www.icj-cij.org/docket/files/135/15887.pdf>.

such appointments. A study of United States federal court judges also recommends a pretrial assessment of the need for expert assistance; the judge can then work with the parties to narrow the scientific or technical issues actually in dispute and select the appropriate type of assistance to avoid delays in the proceedings. The authors of this study found that “[o]ne of the major impediments to the appointment of experts . . . is that judges are too often unaware of a trial’s difficulty until it is too late to make an appointment.”¹⁹³

Whether expert assistance is needed may not always be apparent at the time an application or special agreement is first submitted to a court, but certain signs are indicative. So, if the subject of the dispute is an obligation of conduct—did a state have a duty to provide notice of an activity to a neighboring state and did it do so; or did the state adopt certain measures in its domestic legal framework?—the court’s decision is more likely to turn on legal analysis than complex scientific questions and a master would not be needed. The ease of the International Court of Justice in deciding that Uruguay breached its obligation to notify Argentina of the pulp mill project exemplifies this type of issue. Or, it may be immediately obvious that it would be helpful for the court to have a qualified expert available to consult informally on questions of terminology or other background information. Where the subject matter is narrow, an individual expert appointed by court order could be helpful and sufficient, but here again a master would not be needed.

A special master appointment should be considered when a dispute involves obligations of result, such as the effectiveness of pollution prevention measures. These cases are likely to involve extensive scientific evidence and techniques, such as modeling and statistics, that require scientific training to evaluate. Similar complex factual issues and compendious evidentiary submissions are likely to be involved in cases that require the assessment of costs, like the UNCC’s valuation of environmental damage from the Gulf War;¹⁹⁴ or appraisal of the likelihood that claimed harms were caused by a particular actor or activity, such as Argentina’s argument that the Rio Uruguay’s pollution was caused by the pulp mill in Uruguay.¹⁹⁵

For these cases, an international court, tribunal, or commission can appoint a master with special expertise of both the legal process and the

¹⁹³ JOE S. CECIL & THOMAS E. WILLGING, COURT-APPOINTED EXPERTS: DEFINING THE ROLE OF EXPERTS APPOINTED UNDER FEDERAL RULE OF EVIDENCE 706, at 83–84 (1993). Cecil and Willging surveyed all 537 active federal district court judges to determine their practices and views on using their authority to appoint experts, which was re-published in FED. JUDICIAL CTR., REFERENCE MANUAL ON SCIENTIFIC EVIDENCE (1994). As part of a comprehensive review of the federal judicial system, the Federal Judicial Center has been requested to produce the Reference Manual to assist United States federal judges in managing complex technological, economic, statistical, and natural and social scientific information. FED. COURTS STUDY COMM., REPORT OF THE FEDERAL COURTS STUDY COMMITTEE 97 (1990).

¹⁹⁴ Peter H. Sand, *Compensation for Environmental Damage from the 1991 Gulf War*, 35 ENVTL. POL’Y & LAW 244, 244–48 (2005).

¹⁹⁵ *Pulp Mills* (Arg. v. Uru.), Judgment, ¶¶ 238, 241, 251, 255, 258.

subject matter of the dispute. The special master might work alone, requesting documents from the parties, visiting sites and seeking information from other sources as needed. Or, he might retain and oversee a group of specialized experts on behalf of the court and in consultation with the parties. This role requires skill in coordinating communications between the court, the parties and any experts appointed by the court.

Once a court is in the midst of review, it will be more difficult to add the time and costs of a court-appointed expert to the process if evidence submitted is seen to be too complex for the judges to analyze without assistance. If the court can rule on the legal issues, it may be able to refer the technical evidence to a special master. The court can decide to retain the matter on its docket if necessary, until the experts complete their work. So, a special master could be used to manage a case like *Gabčíkovo-Nagymaros Project (Hungary/Slovakia)*¹⁹⁶ (involving industrial uses of the Danube River), which the Court has kept on its docket since its 1997 Judgment.¹⁹⁷ The committee appointed by the *Iron Rhine Railway* tribunal is another variation of this kind of procedure.¹⁹⁸

VI. CONCLUSION

When the facts of an international dispute are contested, are dispositive of the issue, and either require specialized knowledge or are unusually voluminous, the court or tribunal should consider appointing a special master. The United States Supreme Court's long experience shows that the relationship between the court, the master, and the parties can work effectively.

The special master's role is a flexible position that can be tailored to the needs of the case and the desires of the parties. An appointment order can grant the master broad authority to seek evidence from parties and from other sources, to make site visits, and to conduct other activities that will help the master answer the question put to her by the court. Alternatively, the master's mandate can be as narrow as reviewing evidence submitted by the parties, without the option of requesting further documents or clarifications. The master may be appointed at any point in the process, and the appointment may be for a few weeks or for years, giving the court and the parties great latitude in managing the settlement of the dispute.

Knowledge is not complete or perfect, but it can asymptotically approach that ideal. For courts of general jurisdiction or specialized courts, although the murkiness of factual and scientific uncertainty cannot be entirely avoided, the special master can clear a great deal of it away for the judge.

¹⁹⁶ *Gabčíkovo-Nagymaros Project (Hung./Slovk.)*, 1997 I.C.J. 7 (Sept. 25).

¹⁹⁷ *Id.* at 7; Int'l Court of Justice, *Pending Cases*, <http://www.icj-cij.org/docket/index.php?p1=3&p2=1> (last visited Nov. 12, 2011).

¹⁹⁸ *Kingdom of Belgium v. Kingdom of Netherlands*, 27 R.I.A.A. 41, 44 (Perm. Ct. Arb. 2005).