

Keynote Speech  
**Disputes involving scientific and technical matters and ITLOS**

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I am pleased to be here in Iceland to attend this conference. First, I want to thank the organizers of the Conference, the Law of the Sea Institute of Iceland and the Korea Maritime Institute, for their kind invitation. The topic I want to address this morning is “Disputes involving scientific and technical matters and ITLOS”. Before I start, however, let me preface my speech with a customary caveat that what I am going to say is my personal observation and does not necessarily reflect the views of my Tribunal.

***Influence of science and technology over the law of the sea***

The theme of the conference, “New knowledge and changing circumstances in the law of the sea”, gives us pause to think about one of the most important aspects of the international law of the sea, namely the interplay between law, science and technology.

Historically, science and technology have been major drivers of the law of the sea. From the so-called “cannon shot rule” for measuring the breadth of the territorial sea to the current negotiations on the marine biological diversity of areas beyond national jurisdiction, science and technology have heavily influenced the development of the law of the sea.

This trend has been further accelerated in modern times, with the intensification of the use of the oceans through technological development and increased scientific knowledge about the state of the oceans. Thus Ambassador Jens Evensen of Norway, one of the key figures at UNCLOS III, observed after the conclusion of the conference that “the basic problems with which the Law of the Sea Conference tried to cope were the impact of the revolutionary developments in science and technology, and the influence of these forces in international law”.<sup>1</sup>

Indeed, many provisions of UNCLOS (hereinafter “the Convention”) make reference to scientific evidence, knowledge, information, or methods, and incorporate scientific or technical terms. For example, articles 61 and 119 of the Convention refer to “the best scientific evidence available” to States concerned in taking measures for the conservation of living resources. Articles 165 and 204 refer to “recognized scientific

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<sup>1</sup> Harry N. Scheiber, “Economic Uses of the Oceans and the Impacts on Marine Environments: Past Trends and Challenges Ahead”, in Davor Vidas and Peter Johan Schei (eds), *The World Ocean in Globalization* (Martinus Nijhoff Publishers, 2011), p. 69.

methods” for monitoring the risks or effects of pollution of the marine environment. Article 240 also refers to “appropriate scientific methods and means” in the conduct of marine scientific research. Likewise, article 76 of the Convention on definition of the continental shelf incorporates such scientific terms as “shelf”, “slope”, “margin”, “foot of the slope”, “sedimentary rocks”, “ocean ridges”, “submarine ridges”, “submarine elevations” and others.

Perhaps one area in which science and law are most inextricably linked is the protection and preservation of the marine environment. The very definition of “pollution of the marine environment” in article 1, paragraph 1(4), of the Convention is essentially a scientific one, derived from wording developed by the Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP).<sup>2</sup> Thus the determination of “significant pollution” (article 220), “substantial pollution”, “serious harm to the marine environment” or “significant and harmful changes to the marine environment” would not be possible without scientific fact-finding and assessment.

If we move beyond the Convention to the two implementing agreements and numerous legal instruments adopted under the auspices of the International Maritime Organization, the Food and Agriculture Organization, or other relevant international organizations, we will see even more frequent references to, and incorporation of, science and technology.

### ***Challenges posed by disputes with scientific and technical components***

In light of such a substantial influence of science and technology on the modern law of the sea, in particular upon the Convention, it is no surprise that a dispute concerning the interpretation or application of the Convention would frequently involve the complex issues of science and technology. The same may be said of requests for an advisory opinion on a legal question arising from the Convention. Indeed, on several occasions in both contentious and advisory proceedings before a court or tribunal under article 287 of the Convention, scientific and technical issues have been contested between the parties.

When complex scientific issues are at the heart of the dispute or constitute at least a part of it, it poses a huge challenge to international courts or tribunals whose members are hardly equipped with adequate knowledge or the appropriate background to cope with them.

I understand that the way in which international courts and tribunals should respond to such a challenge has been the subject of intense debate over the past several

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<sup>2</sup> David Anderson, “Scientific Evidence in Cases Under Part XV of the LOSC”, in Myron H. Nordquist, Ronan Long, Tomas H. Heidar and John Norton Moore (eds), *Law, Science and Ocean Management* (Martinus Nijhoff Publishers, 2007), p. 508.

years. I also understand that the methods adopted by them in some earlier cases have been criticized, not only by scholars and commentators but also by members of those courts and tribunals through their individual opinions. For example, Shabtai Rosenne drew attention to the growing scepticism in intellectual and academic circles as to “whether the settlement of disputes through courts composed exclusively by lawyers is the most appropriate form of a dispute settlement organ”.<sup>3</sup> Perhaps the most poignant criticism in this regard would be the joint dissenting opinion of Judges Al-Khasawneh and Simma in the *Pulp Mills on the River Uruguay* case, in which they considered the way the Court evaluated the scientific evidence “flawed methodologically”.<sup>4</sup> At the same time, several ideas and proposals have been flagged to improve the methods of international courts and tribunals to deal with complex scientific evidence and arguments.

Drafters of the Convention were well aware of this challenge. Thus the Convention includes two important innovations in its dispute-settlement system, namely article 289 on experts and Annex VIII on special arbitration. I will make my observations on article 289 of the Convention later in my speech.

### ***Practice of ITLOS in dealing with scientific disputes***

Now I want to take a brief look at how the International Tribunal for the Law of the Sea (“the Tribunal”) has dealt with disputes involving complex scientific and technical evidence and arguments in its proceedings. I must say that the Tribunal’s experience in this regard so far has been relatively limited. The Tribunal has yet to confront a case which includes a heavy dose of science and technology, but it has had its own share of experiences.

Faced with scientific and technical disputes, the Tribunal often, instead of tackling them, asked the parties to the dispute to negotiate and reach an agreement on the disputed matter, or to cooperate with each other in order to determine the appropriate measures to be taken.

For example, in the *Southern Bluefin Tuna* case, the Tribunal ordered the parties to “resume negotiations without delay with a view to reaching agreement on measures for the conservation and management of southern bluefin tuna”.<sup>5</sup> In the *Land Reclamation* case, the Tribunal asked the parties to cooperate and, for this purpose, to enter into consultation in order to establish a group of independent experts with the mandate to determine the effects of Singapore’s land reclamation and to propose

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<sup>3</sup> Shabtai Rosenne, *Essays on International Law and Practice* (Martinus Nijhoff Publishers, 2007), p. 250.

<sup>4</sup> Joint Dissenting Opinion of Judges Al-Khasawneh and Simma, *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, *Judgment*, *I.C.J. Reports 2010*, p. 109.

<sup>5</sup> *Southern Bluefin Tuna cases (New Zealand v. Japan; Australia v. Japan)*, *Provisional Measures, Order of 27 August 1999*, *ITLOS Reports 1999*, p. 280, at p. 299.

measures to deal with any diverse effects of such land reclamation.<sup>6</sup> Likewise, in the *MOX Plant* case, the Tribunal ordered the parties to cooperate and, for this purpose, enter into consultation in order to monitor risks or the effects of the operation of the MOX plant on the Irish Sea and to devise measures to prevent pollution of the marine environment which might result from the operation of the MOX plant.<sup>7</sup>

Another technique the Tribunal has often employed is to accept the scientific evidence upon which the parties to the dispute agree or which is presented by one party but not contested by the other party. For example, the determination of the coastal State's entitlement to the continental shelf beyond 200 nautical miles normally requires scientific and technical assessment in accordance with article 76 of the Convention, which the Tribunal is not competent to make. However, in the *Bay of Bengal* case, the Tribunal was able to determine the existence of such entitlements because it found that there was no significant scientific uncertainty as to the existence of the continental margin in the area in question owing to the "uncontested scientific materials" before it. On the basis of such evidence, the Tribunal was able to determine the existence of the parties' entitlements to the continental shelf beyond 200 nautical miles.<sup>8</sup> In that case, the Tribunal was also assisted by its finding that issues before it, despite the parties' reliance on scientific arguments, were predominantly legal in nature.<sup>9</sup>

On the other hand, it is interesting to note that the Tribunal has often used scientific evidence presented by the parties to find that there is "scientific uncertainty" and thus to take precautionary measures.<sup>10</sup> In the *Southern Bluefin Tuna* case, the Tribunal considered that "there is scientific uncertainty" and "there is no agreement among the parties as to whether the conservation measures taken so far have led to the improvement in the stock of southern tuna".<sup>11</sup> The Tribunal went on to state that "although the Tribunal cannot conclusively assess the scientific evidence presented by the parties, it finds that measures should be taken as a matter of urgency to preserve the rights of the parties and to avert further deterioration of the southern bluefin tuna stock".<sup>12</sup> Similarly in the *Land Reclamation* case, the Tribunal considered that "it cannot be excluded that, in the particular circumstances of this case, the land reclamation works may have adverse effects on the marine

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<sup>6</sup> *Land Reclamation in and around the Straits of Johor (Malaysia v. Singapore)*, Provisional Measures, Order of 8 October 2003, ITLOS Reports 2003, p. 10, at p. 27.

<sup>7</sup> *The MOX Plant case (Ireland v. United Kingdom)*, Order of 3 December 2001, ITLOS Reports 2001, p. 111.

<sup>8</sup> *Delimitation of the maritime boundary in the Bay of Bengal (Bangladesh/Myanmar)*, Judgment, ITLOS Reports 2012, paras. 439-449.

<sup>9</sup> *Ibid.*, paras. 412-413.

<sup>10</sup> Tullio Treves, "Law and Science in the Jurisprudence of the International Tribunal for the Law of the Sea" in Harry N. Scheiber, James Kraska, and Moon-Sang Kwon (eds), *Science, Technology and New Challenges to Ocean Law* (Brill/Nijhoff, 2015), pp. 20-21.

<sup>11</sup> *Southern Bluefin Tuna case (New Zealand v. Japan; Australia v. Japan)*, Order of 16 August 1999, ITLOS Reports 1999, para. 79.

<sup>12</sup> *Ibid.*, para. 80.

environment”,<sup>13</sup> and that “given the possible implications of land reclamation on the marine environment, prudence and caution require that Malaysia and Singapore establish mechanisms for exchanging information and assessing the risks and effects of land reclamation works and devising ways to deal with them in areas concerned”.<sup>14</sup>

### ***Available means under the Convention, the Statute and the Rules***

By employing those methods and techniques, the Tribunal has so far been able to cope with scientific or technical disputes without causing serious controversy. However, those methods and techniques may not always be available or adequate. The Tribunal may soon face a dispute in which the bypassing or circumvention of complex scientific questions is simply not possible. In such a situation, what should the Tribunal do?

A conventional or traditional approach for the Tribunal in this regard has been to rely on the evidence presented by experts called by the parties to disputes. In the practice of the Tribunal, parties have made extensive use of the possibility of calling witnesses and experts. According to the latest study by Rao and Gautier, the parties before the Tribunal have called witnesses and/or experts in 13 out of 23 contentious cases. In total, 23 experts (18 witnesses) and one witness/expert have been called by the parties so far.<sup>15</sup>

Those experts are subject to cross-examination by the opposing parties and also to questions from the bench. Cross-examination is of course an important method for testing out the evidence adduced by a party’s expert.<sup>16</sup> Questions from the bench could help elucidate the contentious points in science and technology and lead to a better understanding of scientific arguments made by the parties. However, these methods have their own limitations.

The opinions of experts called by the opposing parties are often narrowly focused, and may by no means be neutral. More often than not, such opinions diverge. It would be hard for the Tribunal to decide on the more persuasive of two competing scientific opinions.<sup>17</sup> Thus, relying upon the party-appointed experts would fall short of facilitating the Tribunal’s decision-making process in a case with complicated scientific or technical elements.

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<sup>13</sup> *Land Reclamation in and around the Straits of Johor (Malaysia v. Singapore)*, Order of 8 October 2003, *ITLOS Reports 2003*, para. 96.

<sup>14</sup> *Ibid.*, para. 99.

<sup>15</sup> P. Chandrasekhara Rao and Philippe Gautier, *The International Tribunal for the Law of the Sea: Law, Practice and Procedure* (Elgar International Law and Practice), 2018, p. 208.

<sup>16</sup> Caroline E. Foster, *Science and the Precautionary Principle in International Courts and Tribunals* (Cambridge, 2011), p. 100.

<sup>17</sup> Makane Moïse Mbengue, “Scientific Fact-finding at the International Court of Justice: An Appraisal in the Aftermath of the Whaling Case”, *Leiden Journal of International Law* (2016), 29, p. 544.

The next means the Tribunal may consider is the appointment of its own experts to assist in the task of examining scientific and technical evidence. Article 82 of the Rules of the Tribunal provides the Tribunal with the power to appoint a person to hold an enquiry or experts if it considers it necessary to arrange for an inquiry or an expert opinion. In appointing experts, the Tribunal has to define the subject of the expert opinion, state the number and mode of appointment, and lay down the procedure to be followed. In addition, before appointing experts, the Tribunal must hear the parties, who must also be given the opportunity to comment upon every expert opinion submitted.

The Tribunal has yet to make use of article 82 of the Rules, which is modelled upon Article 50 of the Statute of the International Court of Justice ("ICJ") and Article 67 of its Rules. On the other hand, the ICJ has so far utilized these provisions to obtain expert opinions in a few cases, the latest of which is in the case concerning *Maritime boundary in the Caribbean Sea and the Pacific Ocean (Costa Rica v. Nicaragua)*. Annex VII arbitral tribunals have also appointed experts in the *Guyana v. Suriname* case and in the *South China Sea arbitration* in accordance with their respective rules of procedure.

The expert opinion under article 82 of the Rules can help the Tribunal to take a decision on the subject specified. An obvious advantage of the court-appointed expert, compared with the party-appointed expert, may be their impartiality and reliability. By allowing the parties to be heard before experts are appointed and giving them the opportunity to comment upon their opinion, this procedure increases transparency and ensures due process and the good administration of justice.

On the other hand, the Tribunal's engagement or interaction with experts appointed under article 82 of the Rules, especially compared with experts under article 289 of the Convention - which I will shortly touch upon - may be rather limited in terms of the subject covered and the phase in the proceedings. It is not entirely clear whether, under article 82 of the Rules, the Tribunal would be able to benefit from the assistance of experts during deliberations. It has been submitted that

[b]y providing for an opportunity for the parties to comment on the expert opinion, the Rules of the ICJ and ITLOS confine the role of the court-appointed experts to a phase preceding the deliberations. While the experts' view may be useful in assessing the evidence submitted by the parties, the ICJ or ITLOS is not given the opportunity of benefiting from their scientific or technical knowledge at the moment of taking a decision and giving reasons.<sup>18</sup>

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<sup>18</sup> Giorgio Gaja, *Scientific and Technical Evidence before the International Tribunal for the Law of the Sea and the International Court of Justice*, January 2015 (unpublished), pp. 3-4.

However such assistance may be needed most urgently during deliberations, as this is a phase in which the Tribunal examines intensively all the issues in contention between the parties and takes a decision.

The next possibility to which the Tribunal has recourse is to select experts in accordance with article 289 of the Convention, which provides:

In any dispute involving scientific or technical matters, a court or tribunal exercising jurisdiction under this section may, at the request of a party or *proprio motu*, select in consultation with the parties no fewer than two scientific or technical experts chosen preferably from the relevant list prepared in accordance with Annex VIII, article 2, to sit with the court or tribunal but without the right to vote.

Article 15 of the Rules of the Tribunal provides further details for applying this provision. Accordingly, a request by a party for the selection of experts must, as a general rule, be made no later than the closure of the written proceedings. However, the Tribunal may consider a later request made prior to the closure of the oral proceedings, if appropriate in the circumstances of the case. When the Tribunal decides to select experts, at the request of a party or *proprio motu*, it shall select such experts upon the proposal of the President of the Tribunal, who shall consult the parties before making such a proposal.

In addition, under article 42, paragraph 2, of the Rules, experts selected in accordance with article 289 of the Convention take part in judicial deliberations.

The role played by the experts envisaged in article 289 seems to be quite broad, much broader than the role played by the court-appointed experts under article 82 of the Rules. Such experts appear to come close to being judges, as they sit with the court or tribunal and participate in judicial deliberations, though without the right to vote. Thus it has been noted that they are comparable to “assessors” within the meaning of article 30, paragraph 2, of the ICJ Statute.<sup>19</sup> The extensive involvement of experts in the proceedings and their close interaction with the court or tribunal may be a major advantage of experts selected under article 289 but at the same time they could be a cause for concern.

Unlike experts under article 82 of the Rules, experts under article 289 of the Convention can provide the Tribunal with scientific or technical advice and guidance throughout the critical phase of deliberation. They can also respond to any kind of request for assistance within their expertise and whenever such need arises.

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<sup>19</sup> Gudmundur Eiriksson, *The International Tribunal for the Law of the Sea* (Martinus Nijhoff Publishers, 2000), p. 67.

On the other hand, their broad role and extensive involvement in the proceedings could give rise to the possibility that the judicial function of the court or tribunal is delegated to or compromised by outsiders. Judges may be wary of the excessive influence of experts on the decision-making process. It has also been pointed out that the fact that experts have to be selected in consultation with the parties and their number should be no fewer than two could cast doubt on their independence.<sup>20</sup>

Article 289 experts may be utilized in highly technical cases where scientific expertise is crucial to the understanding of key aspects of a dispute and thus to the satisfactory settlement of the dispute.<sup>21</sup> Notwithstanding its innovative character, article 289 has so far never been utilized. However, this should not obscure the potential value of article 289 for the settlement of disputes with complex scientific or technical components.

I also want to add that the Tribunal has on a few occasions relied upon experts it appointed informally for a more limited technical purpose. The practice of using such informal experts (or “experts fantômes”) has been controversial in terms of transparency, due process and the good administration of justice.<sup>22</sup> However, I do not consider such practice particularly troublesome, as long as it is confined to technical issues of minor importance.

In dealing with scientific or technical disputes, the Tribunal may also benefit from the participation of intergovernmental organizations in the proceedings. According to article 84 of the Rules, the Tribunal may, at any time prior to the closure of the oral proceedings, request an appropriate intergovernmental organization to furnish information relevant to a case before it. In addition, when such an intergovernmental organization sees fit to furnish information relevant to a case before the Tribunal, it shall do so in the form of a memorial to be filed with the Registry before the closure of the written proceedings.

On the other hand, there is no provision in the Statute or Rules of the Tribunal relating to the participation of non-governmental organizations (“NGOs”) in the proceedings before the Tribunal. While NGOs can also furnish information relevant to the scientific dispute before it, the Tribunal has been quite cautious about the participation of NGOs.

During the advisory proceedings before the Seabed Disputes Chamber in 2010, for example, the Stichting Greenpeace Council (Greenpeace International) and the World Wide Fund for Nature (WWF) submitted jointly a petition requesting

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<sup>20</sup> See Tullio Treves, *supra note* 10, p. 17.

<sup>21</sup> P. Chandrasekhara Rao and Philippe Gautier, *supra note* 15, p. 55.

<sup>22</sup> Commentary on article 50 of the Statute of the International Court of Justice by Christian J. Tams in A. Zimmermann, *The Statute of the International Court of Justice: A Commentary* (Oxford, 2012), p. 1298.



permission to participate in the proceedings as *amici curiae*, together with a statement attached to it. In light of article 133, paragraphs 3 and 4, of the Rules, which provides that only States Parties and intergovernmental organizations (likely to be able to furnish information on the question) shall be invited to present written and oral statements at the proceedings, the Chamber decided not to grant the request and did not include their statement in the case file.<sup>23</sup> Instead, the statement was posted in a separate section containing documents relating to the case on the Tribunal's website.<sup>24</sup>

The Tribunal followed the Chamber's approach in the subsequent advisory proceedings in 2014. On that occasion, *amicus curiae* briefs were submitted by WWF during the written proceedings. These statements were posted on the website of the Tribunal but were not included in the case file.<sup>25</sup>

The request for the submission of *amicus curiae* was also made in the contentious proceedings. In the "*Arctic Sunrise*" case, Stichting Greenpeace Council (Greenpeace International) requested the Tribunal for permission to file *amicus curiae*, together with the submissions attached to it. The Tribunal decided that its request should not be accepted and that its submissions would not be included in the case file.<sup>26</sup> In addition, unlike in the advisory proceedings, the submissions were not posted on the website of the Tribunal. The more restrictive approach of the Tribunal in the contentious proceedings is not difficult to understand in light of the nature of such proceedings where "a dispute opposes two parties and where a view expressed by a third party – even labelled as '*amicus curiae*' - could jeopardize the principle of strict equality between the parties".<sup>27</sup>

## **Conclusion**

I have now come to the end of my speech. In concluding, the increasing incidence of disputes involving scientific and technical matters is a challenge to a court or tribunal under article 287 of the Convention. It is particularly so to ITLOS, which is widely known as a specialized court with expertise in law of the sea disputes.

In dealing with disputes involving scientific and technical matters, the Tribunal should be braced to go beyond its traditional method of fact-finding and making full use of the different possibilities available to it under the Convention, its Statute and Rules. What methods and means are most suitable and effective will depend upon the

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<sup>23</sup> See *Responsibilities and obligations of States with respect to activities in the Area*, Advisory Opinion, 1 February 2011, ITLOS Reports 2011, para. 14.

<sup>24</sup> *Ibid.*, para. 13.

<sup>25</sup> *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission*, Order of 2 April 2015, ITLOS Reports 2015, para. 23.

<sup>26</sup> See "*Arctic Sunrise*" (*Kingdom of the Netherlands v. Russian Federation*), Order of 22 November 2013, ITLOS Reports 2013, paras. 15-18.

<sup>27</sup> P. Chandrasekhara Rao and Philippe Gautier, *supra note* 15, p. 284.

nature of the particular dispute and the scope and relevance of scientific issues involved in dispute settlement. Those methods and means are not mutually exclusive either. In particular, the Tribunal should not be shy of enlisting the assistance of experts whenever such a need arises. In fact, the best way to avoid the danger of reaching a decision based on facts that a court or tribunal could not fully comprehend is to resort to the knowledge and expertise of appropriate experts.

Shabtai Rosenne once observed in the broad context of international law that international law today is growing more interdisciplinary and even multi-disciplinary. As a result, in his view, international law can no longer be successfully developed, understood, or applied in a world of itself.<sup>28</sup> In my view, this observation could not be more relevant to the settlement of disputes involving highly complex scientific and technical issues. It is something the Tribunal should closely bear in mind.

Thank you very much for your attention.

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<sup>28</sup> Shabtai Rosenne, *Essays on International Law and Practice* (Martinus Nijhoff Publishers, 2007), pp. 249-250.