# The role of science and expert evidence in the ICJ's *Silala* judgment: How Bolivia's incoherent claims ran up against reality

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## 1. *Introduction*

The International Court of Justice (ICJ)'s 2022 *Silala* judgment is surely one of the most curious that the Court has ever handed down.[1] The judgment represents perhaps the first time ever that the Court has decided that the claims of one of the parties, in this case Bolivia, had changed so much over the course of proceedings that ultimately all but one claim and one counter-claim were without object.[2] Leaving aside this curious fact, in this short piece I would like to focus on the role of science and expert evidence in bringing about this curious conclusion of proceedings.

After some preliminary thoughts which situate my analysis of the *Silala* dispute (section 2), in I will map out how Bolivia's claims changed over time and speculate as to the role that experts played in this evolution (section 3). I am going to suggest that Bolivia's retreat from its original position was precipitated by expert evidence which showed that it would not be able to demonstrate that its factual claims were 'sufficiently well-founded' to meet the Court's standard of proof. I am also going to suggest that the role of expert evidence in forcing Bolivia to alter its claims

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[1] ICJ, *Dispute over the Status and Use of the Waters of the Silala (Chile v Bolivia)* (Application) General List No 162 [2016]; See further F Sindico, LM Pateiro, G Eckstein, 'Preliminary Reflections on the ICJ Decision in the Dispute between Chile and Bolivia Over the Status and Use of the Waters of the Silala' EJIL: Talk! (8 December 2022); BS Kantor, E Zavala, 'The Silala Case: Was Justice Served?' EJIL: Talk! (9 December 2022); T Meshel, 'What's in a Name? The Silala Waters and the Applicability of International Watercourse Law' (2017) 39 QIL-Question Intl L 5.

[2] ICJ, *Dispute over the Status and Use of the Waters of the Silala (Chile v Bolivia)* (Judgment of 1 December 2022) para 163 available on the Court's website.

can most helpfully be explained in terms of factual coherence (section 4). I will finish with some more general reflections, including the suggestion that this case contains a broader lesson, one that has implications beyond this particular dispute. This is that while parties are free to make whichever factual claims they (or perhaps more accurately their governments) wish to, only *coherent* claims have any chance of meeting the Court's standard of proof, and ultimately of persuading the Court to rule in that party's favour.

## 2. *Some important preliminary clarifications*

Much has been written in recent years on how international courts and tribunals can and should grapple with contested scientific claims within the context of the judicial process.[3] Although I want to avoid going over old ground, or simply regurgitating what has already been said elsewhere, some background may be helpful for those coming to this topic for the first time. The *Pulp Mills* case marked a watershed moment for the Court.[4] The criticisms levelled at the Court both from within[5] and outwith the Court relating to its handling of complex, scientific information made clear that it could no longer be business as usual in terms of its approach to fact-finding.[6]

[3] C Foster, *Science and the Precautionary Principle in International Courts and Tribunals: Expert Evidence, Burden of Proof and Finality* (CUP 2011) 10; J Alvarez, 'Are International Judges Afraid of Science?: A Comment on Mbengue' (2012) 34 Loyola Intl & Comparative L Rev 12, 86; M Mbengue, 'Scientific Fact-finding by International Courts and Tribunals' (2012) 3 J Intl Dispute Settlement 509; J d'Aspremont, M Mbengue, 'Strategies of Engagement with Scientific Fact-Finding in International Adjudication' (2014) 5 J Intl Dispute Settlement 247; L Malintoppi, 'Fact Finding and Evidence Before the International Court of Justice (Notably in Scientific-Related Disputes)' (2018) 7(2) J Intl Dispute Settlement 421; KM Richmond, 'Towards a Normative Assessment of Probative Value in International Criminal Adjudication' (2021) 263 iCourts Working Paper Series; K Sulyok, *Science and Judicial Reasoning* (CUP 2022) 21-22. See also A Orford, 'Scientific Reason and the Discipline of International Law' in J d'Aspremont and others (eds), *International Law as a Profession* (CUP 2017) 93.

[4] ICJ, *Pulp Mills on the River Uruguay (Argentina v Uruguay)* [2010] ICJ Rep 14.

[5] ibid Joint dissenting opinion of Judges Al-Khasawneh and Simma 109 para 2.

[6] A Riddell, B Plant, *Evidence before the International Court of Justice* (British Institute of International and Comparative Law 2009); B Plant, 'Expert Evidence and the Challenge of Procedural Reform in International Dispute Settlement' (2018) 9 J Intl Dispute Settlement 464; K Parlett, 'Parties' Engagement with Experts in International

In my 2016 monograph I argued that these criticisms had merit and required addressing.[7] I divided the fact-finding challenges facing the Court into two broad groups, namely those relating to situations in which the Court did not have sufficient facts before it (such as in cases of non-appearance) and situations in which the Court was challenged by the abundance or complexity of the facts.[8] With regard to the latter, in particular I highlighted the Court's reluctance to make more regular use of the fact-finding powers it possesses, as well as the practice of informal consultation of experts (so-called *experts fantômes*) as practices that the Court should consider reforming.

Viewing the Court's post-*Pulp Mills* practice, however, I would suggest that there are definite reasons to be cheerful. As I have laid out in much more detail in subsequent publications,[9] the Court has taken steps to stop or limit problematic practices such as experts appearing as counsel or the use of *experts fantômes*.[10] The Court has also, it would appear, taken a more active role in case management relating to the facts, appointing its own experts in one case[11] and more regularly directing the parties to address issues which require further elaboration rather than its more passive previous practice.[12]

Litigation' (2018) 9 J Intl Dispute Settlement 440; LB de Chazournes and others, 'One Size Does Not Fit All: Uses of Experts before International Courts and Tribunals: An Insight into Practice' (2018) 9 J Intl Dispute Settlement 477.

[7] JG Devaney, *Fact-Finding before the International Court of Justice* (CUP 2016).

[8] ibid 75-125.

[9] JG Devaney, 'Evidence: International Court of Justice' (April 2018) in HR Fabri (ed), Max Planck Encyclopedia of International Procedural Law (online edn); JG Devaney, 'Reappraising the Role of Experts in Recent Cases Before the International Court of Justice' (2019) 62 German YB Intl L 337; JG Devaney, 'Fact-Finding and Expert Evidence' in C Espósito, K Parlett, *The Cambridge Companion to the International Court of Justice* (CUP 2023) 187.

[10] G Gaja, 'Assessing Expert Evidence in the ICJ' (2016) 15 L Practice Intl Courts and Tribunals 411-412.

[11] ICJ, *Maritime Delimitation in the Caribbean Sea and the Pacific Ocean (Costa Rica v Nicaragua)* (Order of 31 May 2016) [2016] ICJ Rep 235; ibid (Order of 16 June 2016) [2016] ICJ Rep 240.

[12] ICJ, *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v Nicaragua) and Construction of a Road in Costa Rica along the San Juan River (Nicaragua v Costa Rica)* (Judgment 16 December 2015) [2015] ICJ Rep 665; ibid Verbatim Record of the Public Sitting held on Tuesday 14 April 2015 at 10 am, 44 para 31.

That is not to say that the Court's fact-finding process is now flawless – on the contrary, issues remain and criticisms continue to be made.[13] What's more, the sort of cases that require the Court to engage with complex or scientific facts continue to come before the Court, highlighting the need for it to continually look to improve how it handles facts.[14] And it is in this spirit that I propose to focus in what follows on how complex factual issues were handled in one recent dispute in order to discern whether we can say that the trends observed in the post-*Pulp Mills* era continue and whether there is anything else we can glean regarding the role of science and expert evidence in proceedings before the Court.

Before going any further, there are a number of preliminary clarifications that need to be made. First of all, in what follows I take it that it is the Court's task in contentious cases before it to establish the operative facts from which to draw normative conclusions.[15] This is easier in some cases than it is in others. And in particular, cases in which the facts require the Court to engage in epistemic fields other than law, such as science, are particularly challenging given the training and background of the Court's judges.[16]

Second, I would like to comment briefly on what I consider to be the relevant similarities and differences between law and science as epistemic fields for our purposes. Science and law are distinct epistemic fields,[17] which require specialised training in order for one to gain what we might term epistemic competence.[18] They share a number of features, such as

[13] See eg the criticisms made in Devaney 'Reappraising the Role of Experts' (n 9).

[14] A glance at the Court's docket reveals a number of such as *Question of the Delimitation of the Continental Shelf between Nicaragua and Colombia beyond 200 nautical miles from the Nicaraguan Coast (Nicaragua v Colombia)*.

[15] In other words to facilitate the operation of the legal syllogism, 'the framework of all legal reasoning that involves applying law', N MacCormick, *Rhetoric and the Rule of Law: A Theory of Legal Reasoning* (OUP 2005) 38, 43.

[16] S Brewer, 'Scientific Expert Testimony and Intellectual Due Process' (1998) 107 Yale L J 1589.

[17] Or 'distinct cultures', in the words of S Jasanoff, 'In a constitutional moment: science and social order at the millennium' in B Joerges, H Nowotny (eds), *Social Studies of Science and Technology: Looking Back, Ahead* (Springer 2003)164.

[18] Brewer, 'Scientific Expert Testimony and Intellectual Due Process' (n 16) 1589; S Haack, 'Truth and Justice, Inquiry, Advocacy, Science and Law' (2004) 17 Ratio Juris 1, 15; D Walton, N Zhang, 'An Argumentation Interface for Expert Opinion Evidence' (2016) 29 Ratio Juris 1, 59.

logic as a system for justifying claims is common to both fields.[19] But they also have markedly different methods and standards for evaluating evidence.[20] There are at least three significant divergences, namely:

(i) The goals that each seeks to achieve: broadly speaking, the goal of science is the attainment of knowledge and its methods reflect this, being those which facilitate the generation of scientific knowledge. While the attainment of knowledge is also one of the goals of law, it is just one of several, and it is constrained by the highly institutionalised nature of law.[21] It is more accurate to say that the adjudicative process seeks to attain knowledge in order to establish the operative facts to facilitate the legal syllogism;

(ii) The degree of certainty required to consider a claim sufficiently well-established: while scientific knowledge is defeasible, standards of justification across science and the law are far from uniform and highly context-dependent,[22] and;

(iii) The defeasibility of factual claims in these particular contexts: in contrast to knowledge in the context of science which is always defeasible (in the sense that one hypothesis holds good only as long as it is not supplanted by a more stronger one), once a finding of fact is made as part of the adjudicative process it becomes a formal legal fact, not open to revision as a general rule.[23]

Third, it is important to make clear that I consider that the Court's practice consistently demonstrates that in order for a party's claim to be accepted, it must show that it is 'sufficiently well-founded'.[24] Elsewhere I

[19] J Klabbers, 'Changing Futures? Science and International Law' (2009) 20 Finnish YB Intl L 211; B Hepburn, H Andersen, 'Scientific Method' (Stanford Encyclopedia of Philosophy, 13 November 2015) <https://plato.stanford.edu/entries/scientific-method/>.

[20] See Sulyok, *Science and Judicial Reasoning* (n 3) chapter 2.

[21] Hepburn, Andersen, 'Scientific Method' (n 19).

[22] ibid.

[23] ibid.

[24] 'The Court on its own is not in a position adequately to assess and weigh complex scientific evidence of the type presented by the Parties… a court of justice cannot assess, without the assistance of experts, […] the implications of various substances for the health of various organisms which exist in the River Uruguay. This is surely uncontroversial: the task of a court of justice is not to give a scientific assessment of what has happened, but 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'.

have developed an argument that this does not mean that the party needs to show that its claim has been established beyond all doubt, or even to any standard of probability, but rather all the party must show is that its factual claim is coherent.[25] This means that it is the claim can be justified by reasons,[26] and is the best explanation of the contested factual issue and should be preferred over others.[27] On this basis, in the following section I would I would like to show how Bolivia's claims ran up against the constraints of coherence in this context, and how it was forced to change course mid-flight. I will do so by taking us through how the claims of the parties stacked up over time.

## 3. *The* Silala *dispute – Mapping Bolivia's shifting factual claims*

The *Silala* case has a scientific dispute at its heart, namely the effect of man-made channels on the flow of the Silala River, and attendant implications for the rights and duties of the parties owing to the determination of the legal status of the river. Chile and Bolivia had for many years agreed that the Silala River was an international watercourse which, in accordance with international law, they both had customary rights to make equitable use of.[28] Indeed Bolivia, where the Silala originates, itself affirmed the Silala as an international watercourse as recently as 1996.[29] However a significant change came in 1999 when Bolivia announced that it no longer recognised the river to have this status, challenged Chile's rights to equitable and reasonable use of the waters of the Silala under

ICJ, *Pulp Mills on the River Uruguay* (n 4) Joint dissenting opinion of Judges Al-Khasawneh and Simma 109 para 4.

[25] JG Devaney, 'A coherence framework for fact-finding before the International Court of Justice' (forthcoming).

[26] See eg art 53(2) of the Statute of the International Court of Justice: 'The 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…'. See also R Alexy, *A Theory of Legal Argumentation* (OUP 2009) 214.

[27] See A Amaya, 'Inference to the Best Legal Explanation' in H Prakken and others (eds), *Legal Evidence and Proof* (Routledge 2009) 135.

[28] See Chile's Application (n 1) 10 para ff, especially para 19 regarding the 1942 Chile-Bolivia Mixed Boundary Commission.

[29] ibid 12 para 20. Press Release from the Ministry of Foreign Affairs of Bolivia, *El Diario* (La Paz, 7 May 1996).

customary international law,[30] and even suggesting that Chile should pay compensation for its historical use.[31]

Bolivia's claim that the Silala was not in fact an international watercourse was rooted in its contention that the river only flows across the border to Chile due to the operation of several canals built by Chile on Bolivian territory at the start of the 20th Century (when Bolivia had granted a concession to the Chilean Antofagasta-Bolivian Railway Company).[32] Despite the efforts of a 2001 technical commission and a 2004 working group set up by both states,[33] agreement could not be found through negotiation. The status and use of the river had by this point become a hot political issue, and Chile seized the initiative by bringing the dispute to the ICJ in accordance with the Pact of Bogotá.

Chile, seeking a declaratory judgment, made five claims in its Application: (a) that the Silala is an international watercourse governed by customary international law, (b) that Chile is entitled to equitable and reasonable utilisation of the Silala in accordance with customary international law, (c) that it is entitled to its current use of the Silala, (d) that Bolivia was obligated to take appropriate measures to prevent and control pollution and other forms of harm to the Silala, and (e) that Bolivia was obligated to notify and consult with respect to any measures that may have an adverse effect on the river – an obligation which it has breached.

### 3.1. *Submission of Bolivia's Counter-Memorial (3 September 2016)*

By the time Bolivia came to submit its counter-memorial in 2016 it seemed that its position had shifted from that which it had articulated

[30] Chile's Application (n 1) 14 para 24. The majority of the relevant rules have been codified in the Convention on the Law of the Non-Navigational Uses of International Watercourses (adopted 21 May 1997, entered into force 17 August 2014) UNGA Res 51/229 (21 May 1997) UN Doc A/RES/51/229. Note No GMI-656/99 from the Ministry of Foreign Affairs and Worship of the Republic of Bolivia to the General Consulate of Chile (3 September 1999); Note No GMI-815/99 from the Ministry of Foreign Affairs and Worship of the Republic of Bolivia to the Ministry of Foreign Affairs of the Republic of Chile (16 November 1999).

[31] See Chile's Application (n 1) 16 para 32 for its 'historical debt'.

[32] H Garry, 'The Case of the Silala River: Between the Laws of Men and the Laws of Nature' (Earth.org, 10 September 2019) <https://earth.org/silala-river-special-report/>; R Greco, 'The Silala Dispute: Between International Water Law and the Human Right to Water' (2017) 39 QIL-Questions Intl L 23.

[33] Chile's Application (n 1) 16 para 30.

since 1999. For instance, Bolivia did not seem any longer to contest that the Silala was an international watercourse, but rather placed significant emphasis on the 'artificial enhancements' made to the Silala in the form of the man-made channels, citing the expert report of the Danish Hydraulic Institute (DHI) that it had commissioned.[34] Based on such enhancements the argument of Bolivia became that the waters of the Silala are 'part of an *artificially enhanced watercourse*'.[35] Bolivia's resulting claim was that since the flow of the river had been enhanced by 30-40% the usual customary international law rules should not apply to the Silala.[36] Bolivia at this stage made three counter-claims, that (a) it had sovereignty over the artificial channels and drainage mechanisms installed in its territory, (b) that it had sovereignty over the 'artificial flow' of the Silala, and (c) that any request by Chile for the delivery of the enhanced flow of the Silala is subject to the conclusion of an agreement with Bolivia.

### 3.2. *The course of the oral proceedings before the Court (1-14 April 2022)*

During the oral proceedings Bolivia's position shifted again. Prior to the opening of the oral proceedings, the Court, as it had done previously in the *Construction of a Road* case,[37] asked the parties to prepare a summary of their experts' reports, highlighting the agreement between them,

[34] See ICJ, *Dispute over the Status and Use of the Waters of the Silala* (n 2) Counter-Memorial of Bolivia (3 September 2018) para 13, relying on the study by the DHI commissioned by Bolivia to highlight that 'current surface flows across the Bolivian-Chilean frontier have been assessed to average 160-210 liters per second (l/s). Of this flow, it is estimated that 30-40%, or as much as 64-84 l/s, can be directly attributed to enhancements created by the artificial channels and drainage mechanisms installed in the Silala within Bolivia'.

[35] ibid para 12, intriguingly pointing to the expert reports of both parties, highlighting that '[t]he relevant scientific studies, in particular the experts' reports submitted by Bolivia and Chile, show evidence of artificial enhancements leading to the conclusion that the waters of the Silala are part of an artificially enhanced watercourse' (italics are in the original).

[36] ibid para 14, arguing that '[g]iven that under customary international law an international watercourse designates the transboundary natural flow of waters, customary international rules on the use of international watercourses do not apply to the artificially-flowing Silala waters'.

[37] ICJ, *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v Nicaragua) and Construction of a Road in Costa Rica along the San Juan River (Nicaragua v Costa Rica)* (n 12) 665 para 34.

and outlining what they believed the remaining controversies to be. Chile relied upon two reports prepared by hydrologists and hydrogeologists, Dr Wheater and Mr Peach, in support of its claims in its Memorial, a further two reports in its Reply, and one supplementary report in the additional pleading of Chile. Bolivia, for its part, relied on a report commissioned of the DHI. Both parties would later lead and cross-examine experts during the oral proceedings – something that seems to have become increasingly common since the Court spoke disapprovingly of the practice of experts appearing as counsel in the *Pulp Mills* case.[38]

Chile contended that '…there is no disagreement on any relevant factual issue before the Court, as all Parties agree that, whether as groundwater or as surface water, the waters of the Silala… flow down the gradient to Chile'.[39] Accordingly, 'the key remaining legal issue in the current case is whether international law recognizes the distinction introduced by Bolivia between natural and artificial surface water flows…'[40] – since Bolivia claimed sovereignty over the artificial flows.[41]

It is my suggestion that the production of the expert reports in preparation for proceedings before the Court, made clear the realities of the scientific situation and prompted Bolivia to abandon one of its key earlier claims. In fact, Sam Wordsworth KC, counsel for Chile, felt confident enough at this stage to argue that 'the expert agreement here determines pretty much the entirety of the case'.[42] The extent to which Bolivia's claims continued to change was seized upon by Chile, and made plain to the Court:

[38] ICJ, *Pulp Mills on the River Uruguay* (n 4) 72 para 167.

[39] ICJ, *Dispute over the Status and Use of the Waters of the Silala* (n 2) Verbatim Record of the Public Sitting held on Friday 1 April 2022 at 3 pm, 23 para 25. Even the report commissioned by Bolivia from the DHI said as much: 'The collected data and the established models suggest that the water discharged from the Silala catchment…eventually flows to Chile…' ibid 57-58 para 4(c).

[40] ibid 22 para 24.

[41] ibid. At this stage the counsel for Chile noted that Bolivia's argument regarding sovereignty over 'artificial flows' had not been mentioned between November 1999 and September 2018. Bolivia maintained that 'the Silala cannot be described purely as a "natural" international watercourse. The Silala is presently, and has been for nearly 100 years, a *unique international watercourse with artificially enhanced surface flows'.* ICJ, *Dispute over the Status and Use of the Waters of the Silala* (n 2) Verbatim Record of the Public Sitting held on Monday 4 April 2022 at 3 pm, 33-34 para 60.

[42] ICJ, *Dispute over the Status and Use of the Waters of the Silala* (n 2) Verbatim Record of the Public Sitting held on Friday 1 April 2022 at 3 pm, 57 para 4 (b).

> 'Up to last week, Bolivia was claiming that it had exclusive sovereignty over the so-called artificial flows such that any use thereof depended on Bolivia's consent… and this was supported by various United States cases and other materials concerning salvaged waters and the like. On this basis, Bolivia claimed that the so-called artificial flows were excluded from the customary international law rules on reflected in the 1997 Convention… and subject only to Bolivia's domestic law'.[43]

However, as Chile noted, '[t]hat case was none too subtly jettisoned by Mr Bundy last week and it is now said that there is only sovereignty over the so-called artificial flows in the sense that it is for Bolivia alone to decide whether or not to dismantle the channels on its territory'.[44]

To wit, Bolivia's final submissions were that, inter alia, (a) the waters of the Silala constitute an international watercourse whose surface flow has been artificially enhanced; and (b) under the rules of customary international law on the use of international watercourses that apply to the Silala, Bolivia and Chile are each entitled to an equitable and reasonable utilization of the Silala waters; (c) Chile's current use of the waters of the Silala is without prejudice to Bolivia's right to an equitable and reasonable use of these waters.[45]

These final submissions seemed even to surprise Chile, who summarised them as follows:

> '…when one looks at the declarations that are now sought by Bolivia in response to Chile's claims, the essential legal underpinings to the counter-claims have simply disappeared. The declaration that is now sought as a corollary, as we learnt for the first time just before 5.30 pm yesterday, is that the waters of the Silala – and now there is no exception – do constitute an international watercourse… [and]… it appears from the declaration that… Bolivia's position is now that the waters in their entirety are governed by the usual international law rules'.[46]

[43] ibid Verbatim Record of the Public Sitting held on Monday 11 April 2022 at 3 pm, 57 para 4 (b) 10-11 para 3.

[44] ibid.

[45] ibid Verbatim Record of the Public Sitting held on Thursday 13 April 2022 at 3 pm, 56 para 13.

[46] ibid Verbatim Record of the Public Sitting held on Thursday 14 April 2022 at 3 pm, 11 para 3.

Chile claimed that this essentially meant that 'Bolivia belatedly abandoned its case that the usual customary international law rules do not apply to the so-called artificial flows'.[47] But what exactly drove this shift in Bolivia's position? I would like to suggest, as someone having had no direct involvement in the case, that one of the main drivers of this shift was Bolivia's instruction of experts by both parties in the preparation of its case, and its gradual realisation that its factual claims were incoherent (I will explain in greater what I mean by incoherent in a specific sense in the following section). It is for this reason that Bolivia, knowing that it could not satisfy the Court's standard of proof, felt compelled to abandon its initial claims and to present revised claims. This, I will eventually argue, contains a lesson for all parties to contentious cases before the Court regarding the necessity of ensuring the coherence of their factual claims.

## 4. *Explaining Bolivia's retreat in coherence terms*

As mentioned above, in line with the well-established practice of the Court, it is for the party making a factual claim to prove that claim by satisfying the Court that they have met the standard of proof. From the Court's practice it is relatively clear that, while there is no one standard of proof,[48] parties must establish that their claims are sufficiently well-founded to satisfy the relevant standard of proof in proceedings before the Court.[49] Elsewhere I have tried to flesh out exactly what it means to show that a claim is sufficiently well-founded by making reference to epistemology and the work of coherence theorists such as Amalia Amaya.[50] In short, the argument is that a party's claim need not be established beyond all doubt, nor even to a certain standard of probability, but rather that it need only be shown to be the best (read: most coherent) explanation available.[51] In other words, where a factual claim is contested

[47] ibid Verbatim Record of the Public Sitting held on Thursday 14 April 2022 at 3 pm, 11 paras 3-4.

[48] Devaney, *Fact-Finding before the International Court of Justice* (n 7).

[49] ibid.

[50] See, among others, A Amaya, 'Coherence, Evidence, and Legal Proof' (2013) 19 Legal Theory 1; A Amaya, *The Tapestry of Reason* (Hart 2013).

[51] Devaney, 'A coherence framework for fact-finding before the International Court of Justice' (n 25); A Amaya, 'Coherence, Evidence, and Legal Proof' (n 50) 24.

by the other party, it is for the Court to assess the claims and, through inference to the best explanation and an epistemically responsible process,[52] to select as justified the factual claim that is most coherent. In doing so, I have argued, the Court can assess the factual claims against relevant coherence principles.

For example, Chile claimed that the Silala naturally flows to its territory, either as ground or surface water, while Bolivia's initial claim was that the Silala only flows to Chile as a result of previous artificial enhancements in the form of canals and channels. In considering which of these claims constitutes the best explanation we can have recourse to coherence principles to guide us. Let me elaborate.

In accordance with the coherence principle of explanation, Chile's claim that the Silala naturally flows to its territory was supported by expert evidence gathered by the parties in the form of five expert reports produced by Dr Wheater and Mr Peach and the DHI, (making use of the range of data available) for the purposes of the case that showed that the river did indeed flow naturally both at ground and surface level to its territory. The only disagreement between the experts was the rate of flow of the river which, it was pointed out, was ultimately irrelevant as it was agreed that the same volume of water would ultimately flow to Chile either with or without the artificial enhancements. As such, Chile's claim *cohered* with what it explains, namely that the Silala flows naturally across to border into Chile and as such is an international watercourse.[53]

In contrast, according to the principle of competition, while Chile's claim that the Silala reaches its territory regardless of the operation of artificial canals, and Bolivia's original factual claim that the Silala reaches Chile only as a result of such canals, both independently explain why the river reaches Chile, these explanations are not connected in an explanatory manner. As such these claims compete with one another, and cannot both be considered to be coherent by the Court. Consequently, a choice of which is the best explanation must be made, drawing on other principles such as the principle of explanation already considered.

[52] Amaya, 'Inference to the Best Legal Explanation' (n 27); P Lipton, *Inference to the Best Explanation* (2nd edn, Routledge 2004); S Psillos, 'Inference to the Best Explanation and Bayesianism' in F Stadler (ed), *Induction and Deduction in the Sciences* (Springer 2004).

[53] P Thagard, *Conceptual Revolutions* (Princeton University Press 1992) 67.

Another coherence principle is that of the principle of data priority, in accordance with which a claim which describes the result of an observation has a degree of acceptability on its own. Coming back to our example, Bolivia's claim that the Silala only flows to Chile as a result of man-made canals coheres with our observation that canals are capable of changing the direction of rivers. However, such claims are not beyond challenge – while they carry a certain weight, they must be shown to be capable of being explanatorily connected to other facts. And in fact Bolivia's claim that the river only flows to Chile as a result of the artificial canals cannot be explanatorily connected to other facts, such as those established by the experts that the river has always and will always flow to Chile as a result of the effects of gravity.

Finally for now, and relatedly, the principle of acceptance provides that the acceptability of a claim that forms part of a system depends on its coherence with other claims in that system. So, for example, the acceptability of Chile's claim that the Silala naturally flows to its territory depends on its coherence with other claims relating to what science tells us about the canalization of rivers, the operation of gravity, hydrology, hydrogeology and so on. The acceptability of any claim which explains only some evidence is reduced, such as the claim that the river does not naturally flow into Chile (a claim which does not explain the findings of the experts in their reports). In contrast, Chile's claim that the Silala does naturally flows to its coheres much more with other claims that form part of the system, and leaves less evidence unexplained.

Taking a step back, what can be said about the coherence of Bolivia's claims more generally? I believe that it clear that applying any of the principles just set out, Bolivia's claims were clearly less coherent than those of Chile. As this became increasingly clear to Bolivia as, for instance, the experts made their reports on relevant issues, Bolivia was forced to change tact, to adjust its claims to try to make them more coherent, to attempt to satisfy the standard of proof in relation to its claims. However, in doing so, Bolivia's claims became less and less distinct from those of Chile. Forced on to the back foot, and still changing its claims even during the oral proceedings, this is how we ultimately arrived at the situation in which the Court was able to issue such a curious judgment which essentially waved away the parties claims as being without object.

There is one additional, important issue that it is necessary to discuss when considering factual claims from the point of view of coherence,

namely that of epistemic responsibility. I would like to point out that the coherence framework referenced in this section does not simply result in parties simply competing to show that their claims are the most coherent, without any consideration of how these factual claims accord with reality. No, in order to ensure that facts are arrived at that are not mere abstractions, the coherence framework referenced here (and elsewhere in my work)[54] requires what is known as epistemic responsibility.

Epistemic responsibility provides a link to the value of truth, meaning that the parties do not simply advance their own factual claims for consideration against relevant coherence principles. They must also fulfil a number of epistemic duties to, for instance, maximise justified beliefs and minimise unjustified ones.[55] In this case both parties took additional steps by, for instance, instructing relevant experts to produce reports on the factual issues contested between the parties, and putting forward these experts for cross-examination.

And indeed, this demonstration of epistemic responsibility, of taking additional steps to establish the facts when there was more than one possible explanation, was ultimately significantly important in this case. The reports produced by the experts ultimately showed, as we have seen by reference to coherence principles in the previous section, that Bolivia's claims as they initially stood, were incoherent and ultimately untenable. Bolivia did not capitulate, however, attempting to finesse and nuance its way towards some sort of watered-down version of its initial claims rather than announcing an embarrassing climbdown. Nevertheless, the rigours of the adversarial process and the skill of experienced counsel, as well as the outer limits of coherence and reality, ultimately forced a more or less total retreat.

[54] See Devaney, 'A coherence framework for fact-finding before the International Court of Justice' (n 25).

[55] R Feldman, 'Epistemic Obligations' (1988) 2 Philosophical Perspectives 236; RJ Hall, CR Johnson, 'The Epistemic Duty to Seek More Evidence' (1998) 35 American Philosophical Quarterly 129; R Feldman, 'Epistemological Duties' in PK Moser, *The Oxford Handbook of Epistemology* (OUP 2005) 362; Amaya, 'Coherence, Evidence, and Legal Proof' (n 50).

## 5. *Conclusion*

The *Silala* case is in all likelihood not one that is destined to become a classic. In fact, it is not even clear the extent to which the Court's decision to find the majority of the parties' claims without object (rather than, say, finding in favour of Chile as the applicant party) creates binding legal obligations for the parties. It is now for the parties themselves to take the Court's judgment and decide what to do with it. That said, there are a number of favourable things that can be said. First of all, the Court continues to refine its practice of more actively engaging in the fact-finding process in cases that come before. The Court's directions to the parties to, for example, submit summaries of expert agreement no doubt focussed the minds of the parties, and are preferable to the Court's previous, much more passive approach. Further, cross-examination of the parties experts in open Court has been completely embedded in the Court's practice and while the Court did not make use of fact-finding powers such as appointing its own experts or making a visit to the site, it seems that this was simply not necessary in this case as Bolivia gradually moved closer to the position of Chile.

I would suggest that the very fact of engaging in the adversarial judicial process constituted a reality check for the parties and their claims relating to the nature of the Silala river and attendant rights and obligations. This reality check is one which has already had radiating effects beyond the Great Hall of Justice and may ultimately help to settle this dispute once and for all. As for a broader assessment of the Court's handling of disputes involving complex and contested facts, this will need to wait for cases in which the parties maintain competing factual positions throughout proceedings. If recent history is anything to go by, such a case is surely just around the corner.