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The Guide to Construction Arbitration

General Editors
Stavros Brekoulakis and David Brynmor Thomas QC

Third Edition

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Editors

Stavros Brekoulakis and David Brynmor Thomas QC

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Introduction

Stavros Brekoulakis and David Brynmor Thomas QC[1]

It is a pleasure to introduce the third edition of *The Guide to Construction Arbitration*. The *Guide* has evolved since its first edition to form, we hope, a valuable resource for clients, in-house counsel, experts and external counsel involved in construction arbitration, whether they are dealing with construction arbitration for the first time or have extensive experience in it.

The construction industry is a major contributor to economic growth worldwide. In the United Kingdom it has been estimated that every £1 investment in construction output generates £2.84 in total economic activity.[2] In India, the BJP, which now forms the government, proposed infrastructure spending of 100 lakh crore rupees (over US$1,300 billion) over the next five years in its 2019 manifesto.

The industry covers a wide range of different types of projects, from building offices, factories and warehouses, shopping malls, hotels and homes to major infrastructure projects that involve more complex civil engineering works such as the construction of harbours, railroads, mines, highways and bridges. Other construction projects involve specialist engineering works such as shipbuilding; bespoke plant and machinery such as turbines, generators and aircraft engines; or works that aim to support energy projects such as upstream oil and gas projects or renewables (wind, wave, solar) and nuclear plants.

These complex construction projects are rarely completed without encountering risks that lead to changes to the time and cost required for their execution. Those changes in turn give rise to disputes, the majority of which (possibly the vast majority) are submitted to alternative dispute resolution (ADR) processes and eventually arbitration. The reasons that lead construction parties to choose ADR and arbitration owe as much to the (perceived or

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2 Report of Economic Consultants LEK for the UK Contractors Group.

real) inefficiencies of national courts as to the (perceived or real) advantages of out-of-court dispute resolution. For example, with a few notable exceptions such as the Technology and Construction Court in England and Wales, most national courts lack construction specialist departments or judges with construction expertise and experience. Arbitration, on the other hand, allows construction parties to appoint arbitrators with the necessary specialised knowledge and understanding of complex construction projects. Importantly, arbitration allows construction parties to 'design and build' (to stay in tune with the theme of *The Guide to Construction Arbitration*) the dispute resolution procedure in a way that addresses a number of procedural challenges in construction arbitrations, including the typically large volume of documentary evidence, the most effective use of experts to address delay and quantum, as well as complex technical issues, and programme analysis. While the use of some ADR methods such as dispute adjudication boards has spread relatively recently,[3] arbitration has traditionally been included as the default dispute resolution mechanism for disputes arising out of international construction contracts.[4]

A question that often arises is: what is special about international construction disputes that they require specialist arbitration knowledge? In the first place, construction projects are associated with considerably more risk than any other typical commercial transaction, both in terms of the amount of risk allocated under them and the complexity of that risk. Their nature and typically long duration lead to risks including unexpected ground and climate conditions, industrial accidents, fluctuation in the price of materials and in the value of currency, political risks (such as political riots, governmental interventions and strikes) and legal risks (such as amendments in law or failure to secure legal permits and licences).

Further, time is very often critical in construction projects. An Olympic Games stadium must be delivered before the hard deadline that is the date of the games. If a shopping mall is not ready for the commercially busy Christmas period, significant amounts may be lost in seasonal retail trade. The late delivery of a power station can disrupt the project financing used to fund it.

Moreover, arguments as to causation, especially of delay, in construction projects are typically complex. Many phases of a construction project can run concurrently, which often makes it difficult to identify the origins and causes of delay. Legal concepts such as concurrent delay, critical paths and global claims are unique to construction disputes.

Equally, the involvement of a wide number of parties with different capacities and divergent interests adds to the complexity of construction disputes. A typical construction project may involve not only an employer and a contractor, but several subcontractors, a project manager, an engineer and architect, specialist professionals such as civil or structural engineers and designers, mechanical engineers, consultants such as acoustic and energy consultants, lenders and other funders, insurers and suppliers. A seemingly limited dipute arising on one subcontract may lead to disputes under other subcontracts and the main construction contract, and may have financial and legal consequences for many of the above parties, triggering disputes under much wider documentation such as shareholder agreements, joint operating agreements, funding documents and concessions. That often

3 Dispute adjudication boards were first introduced in FIDIC contracts (in the Orange Book) in 1995 and in ICE contracts as recently as in 2005.

4 Arbitration has been included in FIDIC contracts since the publication of the first FIDC contract in 1957.

gives rise to issues about multiparty arbitration proceedings and third-party participation in arbitration proceedings.

Another important feature of construction disputes is the widespread use of standard forms, such as the FIDIC or the ICE conditions of construction contracts. Efficient dispute resolution requires familiarity and understanding of the, often nuanced, risk allocation arrangements in these standard forms. Good knowledge of construction-specific legislation is necessary too. While the resolution of most construction disputes will depend on the factual circumstances and the provisions of the contractual agreement of the parties, legal issues may often arise in relation to statutory (frequently mandatory) warranty and limitation periods for construction claims, statutory direct claims by subcontractors against the employers,[5] statutory prohibition of the pay-when-paid and pay-if-paid provisions[6] and, of course, mandatory legislation on public procurement.[7]

Finally, as already mentioned, construction disputes are technically complex, requiring efficient management of challenging evidentiary processes, including document management, expert evidence, programme analysis and quantification of damages. The evidentiary challenges in construction disputes have given rise to the use of tools, such as Scott Schedules (used to present fact intensive disputes in a more user friendly format), that are unique in construction arbitrations.[8]

It is for all these reasons that alternative dispute resolution and arbitration of construction disputes require special focus and attention, which is what *The Guide to Construction Arbitration* aims to provide.

The Guide to Construction Arbitration is designed to appeal to different audiences. The authors of the various chapters are themselves market-leading experts, so it can provide a ready resource for specialist construction arbitration practitioners who already have a view of the information they seek. Beyond that, it has been compiled and written to offer practical information to practitioners who are inexperienced in international construction contracts or dispute resolution in construction disputes. For example, in-house lawyers who may be experienced in negotiating and drafting construction contracts but not in running disputes arising from them, or construction professionals who may have experience in managing construction projects but may lack experience in the conduct of construction arbitration, will find *The Guide to Construction Arbitration* useful. Lawyers in private practice who are familiar with arbitration, but lack experience in construction will also benefit. Last but not least, students who study construction arbitration will find it to be a helpful source of information.

While the main focus of *The Guide to Construction Arbitration* is the resolution, by arbitration, of disputes arising out of construction projects, Part I is devoted to important substantive aspects of international construction contracts. To understand how construction disputes are resolved in international arbitration, one has to understand how disputes arise out of a typical construction contract in the first place, and what are the substantive rights, obligations and remedies of the parties to a construction contract.

5 For example, in France, Law No. 75-1334 of 31 December 1975 on Subcontracting.

6 For example, in the United Kingdom with the UK Housing Grants Construction and Regeneration Act 1996.

7 For example, EU Directive 2014/24.

8 J. Jenkins and K. Rosenberg, 'Engineering and Construction Arbitration', in Lew et al. (editors) *Arbitration in England*, Kluwer (2013).

Thus, this book is broadly divided in four parts. Part I examines a wide range of substantive issues in construction contracts, such as The Contract: the Foundation of Construction Projects, Bonds and Guarantees, an Introduction to the FIDIC Suite of Contracts, Allocation of Risk in Construction Contracts, Contractors' and Employers' Claims, Remedies and Reliefs. Chapters valuably address the quantification of delays, the role of programmes and the various methods used for the computation of costs and damages in construction arbitrations, while an entire chapter is devoted to an examination, from a comparative law perspective, of the practically critical topic of concurrent delay.

Part II then focuses on dispute resolution processes in construction disputes. The aim of this Part is to look into special features of construction arbitration, and the following chapters are included: Suitability of Arbitration Rules for Construction Disputes, Subcontracts and Multiparty Arbitration in Construction Disputes, Interim Relief, including Emergency Arbitrators in Construction Arbitration, Organisation of the Proceedings in Construction Arbitrations, Documents in Construction Disputes and Awards, and the role and management of expert evidence.

Part III examines a number of select topics in international construction arbitration by reference to some key industry sectors and contract structures, including the nuclear sector, energy sector, concession contracts and turnkey projects. Part IV examines construction arbitration in specific jurisdictions of particular interest and with very active construction industries

We have taken the opportunity to add to the chapters in this third edition, to address matters identified by users of the first two editions. These include chapters examining dispute boards, ADR in construction contracts, agreements to arbitrate and interim relief in detail. There are chapters on pricing and payment, investment treaty arbitration in the construction sector, a discussion of the typical parties to a construction contract, further discussion of the organisation of expert testimony and a chapter on construction arbitration in Brazil.

Overall, the third edition of *The Guide to Construction Arbitration* builds upon the success of the first two editions and has been further expanded. The structure and organisation of *The Guide to Construction Arbitration* is broadly based on the LLM course on International Construction Contracts and Arbitration that we teach at Queen Mary University of London. The course was first introduced by HH Humphrey Lloyd in 1987 and was taught by him for more than 20 years. Humphrey has been an exceptional source of inspiration for hundreds of students who followed his classes, and we are personally indebted to him for having conceived the course originally and for his generous assistance when he passed the course on some years ago.

We want to thank all the authors for contributing to *The Guide to Construction Arbitration*. We are extremely fortunate that a group of distinguished practitioners and construction arbitration specialists from a wide range of jurisdictions have agreed to participate in this project. We further want to thank Gemma Chalk, Bevan Woodhouse and Hannah Higgins for all their hard work in the commission, editing and production of this book. They have made our work easy. Special thanks are due to David Samuels and GAR for asking us to conceive, design and edit this book. We thoroughly enjoyed the task, and hope that the readers will find the result to be useful and informative.

Part II

Dispute Resolution for Construction Disputes

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Expert Evidence in Construction Disputes: Arbitrator Perspective

Nathalie Voser and Katherine Bell[1]

Introduction

The primary methods of presenting factual evidence in international arbitration are contemporaneous documents, testimony of fact witnesses and testimony of expert witnesses. Whereas contemporaneous documents tend to have the highest probative value when it comes to facts in general, expert witness testimony is the predominant means of evidence when it comes to technical matters. International construction disputes frequently raise a variety of complex technical issues and other factual issues requiring expertise. The parties will therefore almost invariably have to adduce expert evidence in support of their case and to support the tribunal's decision-making process.

In practice, parties to large-scale international construction arbitrations often appoint not one but several experts to give testimony in a variety of technical fields. Expert evidence is typically required on the topics of delay, quantum, geotechnics, defects or forensic accounting.

Against this background, it is unsurprising that experts have become a routine feature in international construction arbitration, with the role of the expert witness being continuously refined by arbitration practitioners.

Most arbitration rules, such as the International Chamber of Commerce (ICC) Rules or the United Nations Commission on International Trade Law (UNCITRAL) Arbitration Rules, contain provisions dealing with expert evidence.[2] However, these institutional rules offer hardly any guidance as to how experts should be managed effectively.

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1 Nathalie Voser is a partner and Katherine Bell is a senior associate at Schellenberg Wittmer Ltd.

2 Articles 25(3) and (4) ICC Rules of Arbitration, in force as from 1 March 2017 (ICC Rules); Articles 17(3), 27(2), 28(2), and 29(1) and (5) UNCITRAL Arbitration Rules (whereby Article 29 only mentions tribunal-appointed experts).

The International Bar Association (IBA) Rules generally reflect arbitral practice and expressly provide for the use of experts.[3] The most elaborate rules on the use of experts in arbitral proceedings are set forth in the Chartered Institute of Arbitrators (CIArb) Protocol, which aim at supplementing the IBA Rules.[4]

Last but not least, construction experts and engineers are frequently members of professional associations. Many of these professional organisations have established codes of conduct that set out ethical rules for their members serving as witnesses in dispute resolution proceedings.[5]

Expert evidence is generally a significant cost driver in international arbitration. This makes it all the more important that expert evidence is managed properly to ensure that it is of utmost benefit to a party's proof of its case as well as the arbitral tribunal's understanding of the technical issues in dispute. Determining the most efficient and successful methods for submitting and handling expert evidence is therefore essential.

This chapter is based on the authors' experience and considers legal and practical aspects of managing expert evidence throughout the arbitration, focusing on expert evidence submitted by the parties.

Party-appointed versus tribunal-appointed experts

Common law and civil law traditionally take different approaches when it comes to expert evidence. In the common law tradition of the adversarial system, expert evidence is introduced into the proceedings by the parties. In the civil law tradition, experts are appointed by the court and are considered independent 'assistants' to the judiciary. Modern international arbitration has combined these two approaches: parties may appoint and present their own experts in support of their case, and the arbitral tribunal also has the power to appoint an independent expert, whether at the request of a party or on its own initiative.

Article 5.1 IBA Rules expressly provides that parties may rely on party-appointed experts as a means of evidence on specific issues. The statements, opinions and conclusions put forward by a party-appointed expert are simply a means of evidence. The arbitral tribunal must still assess the admissibility of expert evidence and its probative value according to the same rules applicable to other forms of evidence.

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3 See regarding party-appointed experts Article 5 and regarding tribunal-appointed experts Article 6 IBA Rules on the Taking of Evidence in International Arbitration, 2010 ed. (IBA Rules).

4 See CIArb Protocol for the Use of Party-Appointed Expert Witnesses in International Arbitration, 2007 ed. (CIArb Protocol).

5 See M. Kantor, 'A Code of Conduct for Party-Appointed Experts in International Arbitration – Can One be Found?', 26(3) *Arbitration International* 323, pp. 343, 353 and 359, with references to organisations and codes of conduct in the United States (e.g., the Code of Ethics of the American Society of Civil Engineers, last updated on 29 July 2017), the United Kingdom (e.g., the Code of Conduct Regulation of the Institution of Mechanical Engineers, as amended on 15 March 2017), and Australia (e.g., the Codes of Ethics of the Institution of Engineers Australia); see R. Horne and J. Mullen, *The Expert Witness in Construction* (2013), pp. 124 et seq. regarding professional institute rules in the United Kingdom (i.e., the Code of Professional Conduct of the Institution of Civil Engineers, with last modifications taking effect from 7 November 2017; the practice statement and guidance note 'Surveyors acting as expert witnesses' of the Royal Institution of Chartered Surveyors, 4th ed. effective from 2 July 2014). For Switzerland, see Articles 3 and 4 of the '*Standesordnung* [code of conduct]' of the Swiss Society of Engineers and Architects.

With regard to technical issues in particular, one would assume that there is a scientific 'right' or 'wrong'. However, in practice each side will almost inevitably appoint competing experts presenting conflicting expert evidence. Even after the experts have been tested during cross-examination at the hearing, it is usually a challenging task for the arbitral tribunal to make a reasoned judgment between two diverging professional opinions.

Where the arbitral tribunal is confronted with conflicting expert evidence, or from the outset in the absence of reports by party-appointed experts, the tribunal may wish to appoint an additional expert of its choosing to obtain technical assistance based on a source of expertise untainted by party bias.

It is generally accepted that arbitral tribunals have the power to appoint experts, and most arbitration rules expressly grant the tribunal such authority.[6] Article 6.1 IBA Rules provides that the arbitral tribunal, after consulting with the parties, may appoint one or more independent experts to report on specific issues designated by the arbitral tribunal.[7] The costs of the tribunal-appointed expert are not part of the general costs of the arbitration and the requesting party will likely have to pay an advance on such costs prior to commencement of the expert's work.[8] If the tribunal decides without a party request that it wishes to appoint an expert, the tribunal will usually request the parties to advance the expected costs in equal shares.

It is understood and crucial that the arbitral tribunal does not delegate the decision-making to its expert. Nevertheless, parties and counsel regularly have concerns when it comes to tribunal-appointed experts and sometimes fear that their dispute is essentially decided by the tribunal-appointed expert rather than the arbitral tribunal itself. Parties are also often afraid of a lack of control with regard to how the tribunal-appointed expert's evidence – potentially the element most critical to their case – will be presented. Further, although the tribunal-appointed expert is subject to the same standards of impartiality and independence as the members of the tribunal, he or she is not the individual chosen by the parties to resolve their dispute. Finally, another – and in the view of the present authors, justified – concern, particularly relevant where cutting-edge technical issues are concerned, is that a single tribunal-appointed expert may have a tendency to promote his or her own published theory without taking into account or presenting to the arbitral tribunal other valid opinions in the field, including those presented by the party-appointed experts.

Despite the appointment of an expert by the tribunal, parties will often retain their own expert or experts in order to assist with the preparation of the questions to the tribunal-appointed expert, the assessment of the tribunal-appointed expert's report, and to prepare for the questioning of the tribunal-appointed expert at the evidentiary hearing. Hence, the appointment of an expert by the tribunal does not necessarily result in considerably fewer expenses for the parties.

6 See e.g., Article 25(4) ICC Rules, Article 29 UNCITRAL Arbitration Rules or Article 21 LCIA Arbitration Rules.

7 See also Article 25(4) ICC Rules, Article 29 (1) UNCITRAL Arbitration Rules, Article 21(1) LCIA Arbitration Rules or Article 25(1) ICDR International Arbitration Rules.

8 See e.g., Article 1(12) of Appendix III ICC Rules.

From the point of view of the arbitral tribunal, the selection, instruction, and administration of a tribunal-appointed expert is very time consuming, thus arbitral tribunals will generally refrain from assuming this additional task unless the mandating of a tribunal-appointed expert seems essential to the resolution of the case. Furthermore, as a rule, arbitral tribunals have sufficient experience when it comes to assessing technical issues and are capable of extracting the answers to the relevant technical questions from the expert reports, possibly also by relying on expert conferencing at the hearing.

In light of all of the above, it is not surprising that, in practice, expert evidence in construction disputes is habitually submitted by the parties, and tribunal-appointed experts remain the exception. Generally, the arbitral tribunal will appoint an expert only if requested by one or both parties, or if the tribunal lacks the necessary expertise to decide around a certain technical issue relevant to its decision.

Suffice it to note that in the rare cases where a tribunal-appointed expert is appointed, the parties' procedural rights are safeguarded by means of their involvement in the selection process and in compiling the questions to be put to the expert.[9]

Finding and selecting the right party-appointed expert

Considering the significance of expert evidence, finding and choosing the right expert is one of the most important decisions to be made by the parties in the course of a construction arbitration.

In technical fields where there are few people sufficiently qualified to give an expert opinion, it may be wise to identify and appoint an expert as soon as possible. Moreover, an early involvement of the expert allows counsel to identify and understand the key technical issues in dispute, assess the client's chances of success, and plead the client's case from the start in the knowledge that the expert's evidence will be fully supportive.[10]

Counsel may pursue various avenues when searching for an expert. Most law firms practising international arbitration keep databases of their 'go-to' experts in the prevalent fields of construction-related expertise. If expertise of a more obscure nature is required, the client will likely be able to suggest appropriate candidates. Another option is to contact international construction and engineering consultancy organisations that can draw from a large pool of experts in various fields and broker between counsel and expert candidates.[11] Counsel may also reach out to the leading arbitration institutions.[12]

Regardless of how an expert candidate is found, it is important to conduct an interview with the potential expert, typically via telephone, before the decision is made whether to retain him or her. The main purpose of the expert interview is to enable a detailed discussion on the content of the expert witness's curriculum vitae, to provide the expert with

9 See also Article 6 IBA Rules.

10 See D. O'Leary, The use of experts in construction disputes in the UAE, www.tamimi.com/law-update-articles/the-use-of-experts-in-construction-disputes-in-the-uae-2/ (last accessed 31 July 2018).

11 See, e.g., The Academy of Experts (www.academyofexperts.org/) or the Expert Witness Institute (www.ewi.org.uk/).

12 Pursuant to Article 1 (1) ICC Rules for the Proposal of Experts and Neutrals, in force as from 1 February 2015, any person may submit a request to the ICC International Centre for ADR for the proposal of an expert in a particular field. The ICC currently charges a flat fee of US$5,000 per expert for this service (see Article 1 of Appendix II ICC Rules for the Proposal of Experts and Neutrals).

more detail as to the issues in dispute, for the expert to ask further questions to confirm his or her expertise and availability, and for counsel to assess the candidate's abilities as an expert witness and how he or she will fit into the team. There may also be some discussion regarding the expert's preliminary view on certain aspects of the case. If the expert has concerns about his or her expertise in certain areas, he or she should be forthcoming about them.

A number of factors will influence the decision regarding the choice of experts. The expert must have a solid reputation in the relevant field and, ideally, he or she has experience in acting as an expert witness, by giving both written and oral testimony. In order to come across as a reliable and credible expert, the expert should have good communication skills and have the ability to communicate complicated technical issues in a comprehensible way that allows laymen, and in particular the members of the arbitral tribunal, to understand the salient technical points of the case. Another important factor to discuss is the expert's availability. Counsel should ensure that the expert has sufficient capacity to carry out the various steps of his or her mission, namely, fact-finding, compiling the report, assisting during the document production phase, and attending the evidentiary hearing.

Impartiality and independence of the party-appointed expert

Although appointed by the parties, experts are expected to perform an independent assessment of the case, with their ultimate duty being to the arbitral tribunal. The more objective and independent the expert appears, the more credible he or she is and the more weight the arbitral tribunal will give to the expert's evidence.

Article 5.2.c IBA Rules requires the expert to include in the report a statement of his or her independence from the parties, their legal advisors and the arbitral tribunal.[13] The main purpose of this provision is not to exclude experts with any connection to the participants or the subject-matter of the case, but rather to emphasise the duty of the party-appointed expert to evaluate the case in an independent and neutral manner.[14] In particular, a person would disqualify as party-appointed expert if he or she has a financial interest in the outcome of the case, or otherwise has relationships preventing him or her from providing his or her honest and frank opinion.[15] Accordingly, Article 5.2.a IBA Rules contains a duty of the expert to disclose any existing or past relationship with any of the parties, their legal advisors or the arbitral tribunal.

However, the value of such self-assessment by the expert might be criticised as limited, and party-appointed experts might be reproached for their apparent lack of independence, tailoring their evidence for the primary purpose of supporting the case of the appointing party.

13 Certain guidelines go further, see Article 4 CIArb Protocol.

14 See 1999 IBA Working Party and 2010 IBA Rules of Evidence Review Subcommittee (IBA), Commentary on the revised text of the 2010 IBA Rules on the Taking of Evidence in International Arbitration, p. 19.

15 See IBA, p. 19.

Counsel as well as the expert should therefore seek to ensure that he or she does not come across as biased. Experts are generally regarded as convincing if they can refrain from acting as an advocate for the party that retains them and show a willingness to concede points where appropriate to do so.[16]

If a party deems that the expert appointed by the other party lacks the required independence or impartiality, the question arises whether such expert may be formally challenged, or whether the expert's independence and impartiality is primarily a matter to be considered by the tribunal in its assessment of evidence. The issue generally appears to boil down to a matter of assessment of evidence by the arbitral tribunal.

Instructions to the party-appointed expert

Following the appointment of the expert, the party, its counsel and the expert should work together to establish the expert's mission. The instructions to the expert should be executed in writing and clearly set out the scope of the expert's work. The instructions should further contain the details of the matter and the involved parties, the expert's contact details, a timetable for deliverables as well as the expert's remuneration and payment conditions.

The expert should be provided with all relevant documents including, if already existing, the relevant parts of the parties' legal submissions and fact witness statements. The expert has a duty to carry out a forensic investigation of the relevant facts and should be proactive in requesting additional information or documents required to perform his or her task. Accordingly, the expert will likely be closely involved in guiding and directing disclosure requests from the other party. The documents should be provided alongside instructions regarding their use. In particular, the instructions should contain a confidentiality clause.

Counsel might wonder whether their written communications with an expert, including drafts and markups of the expert's report, may be subject to document production. The production of such communications is rarely sought and case law or guidelines on the discoverability of counsel-expert communications are rare.[17] Prevailing practice in international arbitration is a presumption of non-discoverability of counsel-expert communications.[18]

Written expert evidence: the expert report

Expert evidence is typically introduced into the arbitral proceedings in form of a report. The expert report is often submitted together with a party's first legal submission, with the opportunity to submit a rebuttal expert report in the second round of submissions (see

16 See also Jenkins, pp. 208–209, with further references.

17 See, e.g., Article 5 CIArb Protocol, which presumes that counsel-expert communications as a general matter are privileged and not subject to production.

18 P. Friedland and K. Brown de Vejar, 'Discoverability of Communications between Counsel and Party-Appointed Experts in International Arbitration', in A.J. van den Berg (ed.), *Arbitration Advocacy in Changing Times, ICCA Congress Series No. 15* (2011), pp. 162–164; G.B. Born, *International Commercial Arbitration* (Volume II, 2nd ed., 2014), Section 2281.

Article 5.3 IBA Rules). Rebuttal reports are limited to responses to matters contained in another party's witness statements, expert reports or other submissions that have not been previously presented in the arbitration.[19]

The report's format and content will depend on the particularities of the case and the instructions given to the expert. Article 5.2 IBA Rules sets out the constituent elements of the expert report, which include, *inter alia*, the instructions, the facts underlying the report, the expert's opinions and conclusions including a description of the methodology, evidence and information used in arriving at the conclusions, and documents on which the expert relies that are not already on file. This information is required in order to enable the other party to appropriately evaluate the content of the expert report.[20] In addition, the expert report must contain an affirmation of the expert's genuine belief in the expressed opinions. Such statement is intended to commit the expert to his or her report and emphasise that the expert should be prepared to take responsibility for the contents of the report during the course of the arbitration.[21] Finally, the report should include the expert's *curriculum vitae*.

The report should follow a logical structure and contain a table of contents. Large volumes of information should be depicted in a comprehensible and digestible manner. It may be wise to move bulky or voluminous documentation, calculations or methodologies to the appendices rather than including them in the body of the report.

Building information modeling (BIM) is becoming a more common feature of construction projects and hence the data is available to use BIM as part of the dispute resolution process. BIM is therefore gaining traction as a tool to assist in the presentation of expert evidence in construction arbitration.[22] BIM can be used to demonstrate an engineering analysis or expert programming evidence. As a rule, BIM snapshots are included in the report with the full version being provided electronically.[23]

Documents underlying the expert report are typically referenced in the body text and listed in a subsection of the report or in an appendix, and – if not already on file – annexed to the report. A recurring issue in this context is whether the expert must designate only the documents which he or she relied on in the report, or all documents which he or she consulted when preparing the report. It is important to consider this at the outset when instructing the expert, as a party that provides the expert with full access to its digital data room may be severely disadvantaged if the expert is subsequently ordered to disclose such information. There appears to be no prevailing practice regarding whether or not the expert is obligated to disclose the entirety of the information and documents received or that were made accessible to him or her. As a rule, it should be sufficient to list only the documents that were used to prepare the report. This creates a level playing field between the parties. Furthermore, additional documents should only be handed over based on the principles applicable to document production requests in the arbitration.

19 IBA, p. 20.

20 IBA, p. 19.

21 IBA, p. 19.

22 See Jenkins, pp. 209–210.

23 See Jenkins, pp. 209–210.

Expert witness meetings; joint reports

In order to make the expert evidence more accessible and to gain a better understanding of the issues in dispute, an increasingly popular method of dealing with party-adduced expert evidence is for the arbitral tribunal to order expert conclaves or joint expert meetings.

During such meetings, which are expressly provided for in Article 5.4 IBA Rules, the experts – in the absence of the tribunal, the parties and their counsel – conduct discussions in order to narrow down the issues in dispute. Experts from the same discipline can relatively quickly identify the reasons for their diverging conclusions and work towards finding areas of agreement. The experts then prepare a joint report setting out the outcome of their meeting and the areas of agreement and disagreement. The joint expert report therefore significantly contributes to the arbitral tribunal's understanding of where the points of divergence lie. Such reports often consist of a table setting out the issues in the left column and the respective experts' positions in the following columns.[24]

Oral expert evidence: expert testimony at the evidentiary hearing

The party-appointed expert is required to give testimony at an evidentiary hearing if requested by a party or the arbitral tribunal.[25] Expert witnesses in construction arbitrations are routinely required to testify. If an expert who is called to give evidence at a hearing fails to appear, the tribunal will, as a rule, disregard the expert's report, unless there are exceptional circumstances.[26] If a party does not request an expert appointed by the opposing party to appear at the hearing, such party shall not be deemed to have accepted the content of the expert's report.[27] Where the experts prior to the hearing attended a joint expert meeting and established a joint report, their oral evidence at the hearing may be limited to the identified areas of disagreement.[28]

At the hearing, the expert will not only be regularly present for his or her testimony, but will usually attend the entire hearing, as it is important for the expert to hear the fact evidence as well as other experts' testimonies.

Traditionally, expert witnesses give their evidence separately and in turn, first during direct examination by counsel of the appointing party followed by a cross-examination by the opposing counsel.

The expert's report will usually serve as his or her direct testimony. However, in recent years it has become more and more customary for each expert to give a presentation summarising the main points of his or her report. The expert will then be subjected to cross-examination, possibly followed by re-direct examination limited to the scope of the cross-examination. Experts are questioned much like fact witnesses with focus on their credentials, independence, the material reviewed, methodology, and the basis for their opinions. In addition, the arbitral tribunal will likely put questions to the expert during or after their examination.

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24 See also Rosen, pp. 403–404 and Annex IV with practical tips and template regarding joint expert meeting and joint report.

25 See Article 8.1 IBA Rules.

26 See Article 5.5 IBA Rules.

27 See Article 5.6 IBA Rules.

28 See also IBA, p. 20.

An expedient and popular method of dealing with oral expert testimony is expert witness conferencing, colloquially dubbed 'hot-tubbing'. The expert witnesses give evidence concurrently rather than sequentially, with the arbitral tribunal leading the debate. The experts take questions first from the arbitral tribunal, and thereafter from counsel at the same time. The arbitral tribunal may order such conferencing upon request of a party or on its own motion (see Article 8.3.f IBA Rules).

Expert witness conferencing is recognised as an effective technique for the arbitral tribunal to elicit clearer evidence on the relevant technical issues and shorten the procedure at the hearing. Placed next to their professional peers, experts may be compelled to present their opinions more independently and objectively.[29] Without being subjected to cross-examination, expert witnesses are more likely to take a constructive approach, to express their opinions with confidence, and to make concessions where they feel it is right to do so.[30]

For conferencing to be successful, the arbitral tribunal must be well-prepared, understand the technical issues at stake, and properly manage the process. Counsel should only agree to expert conferencing if they are confident that their expert is sufficiently resilient and engaging to ensure that his or her opinions and findings will be suitably presented in the process.[31]

Expert evidence and setting aside of the award: what to look out for

An arbitral award may be challenged and potentially set aside on grounds related to expert evidence relied upon by the arbitral tribunal when rendering its decision.

In light of the importance of an expert's independence and impartiality, an arbitral award may be challenged for example based on the argument that the arbitral tribunal relied on the findings of a biased expert. Depending on the seat of the arbitration, the challenge may be put forward on the grounds of incompatibility with public policy. In any case, the party in question must have promptly challenged the expert's lack of independence in the arbitral proceedings.[32]

Another potential ground for the setting aside of an award may be put forward based on the right to be heard, where the arbitral tribunal rejected a party's request for the appointment of a tribunal-appointed expert. The success of a challenge based on such argument will largely depend on whether the applicable arbitration law grants the parties a right to the appointment of an expert by the tribunal. While many jurisdictions do not grant the parties such right,[33] according to the Swiss Supreme Court's case law the parties have a

29 See Sachs and Schmidt-Ahrendts, p. 143.

30 Horne and Mullen, p. 303.

31 Snider and Adams, p. 19.

32 See, e.g., for Switzerland, Article 190(2) IPRG and Berger and Kellerhals, Section 1350; for The Netherlands, Article 1065(1)(e) Rv and V. Lazić and G.J. Meijer, Netherlands, in F.-B. Weigand (ed.), *Practitioner's Handbook on International Commercial Arbitration* (2nd ed., 2009), Section 9.198; and for Austria C. Liebscher, The Austrian Arbitration Act 2006: Text and Notes (2006), annotated text to Section 601(3) ZPO.

33 Born, pp. 2279–2280; E. Gaillard and J. Savage, *Fouchard Gaillard Goldman on International Arbitration* (1999), Section 1290. Regarding the arbitral tribunal's obligation to pursue requests for evidence in Germany, see OLG Frankfurt a.M. decision of 17 February 2011, 26 Sch 13/10, at II. 3, with further references.

right to the appointment of an expert by the tribunal if certain rather restrictive conditions, such as an express request by a party and the relevancy of the requested expertise to the tribunal's decision, are met.[34]

Finally, it is paramount for the arbitral tribunal and counsel to ensure that expert reports are submitted in compliance with the agreed procedural rules, as non-compliance may too serve as grounds for a challenge to the award. In a landmark decision of 2011, the Higher Regional Court of Frankfurt am Main set aside an arbitral award due to the failure by a party and its expert to adhere to the agreed procedural rules. The arbitral tribunal had issued a procedural order containing detailed directions for the taking of expert evidence. The directions required the parties to disclose all information that the experts had reviewed in the process of drafting their respective expert reports. This provision had been subject to extensive prior negotiations between the parties and the tribunal, and was referred to in the procedural order as an 'agreement by the parties'. One of the parties subsequently failed to disclose all of the information its experts had reviewed when preparing their report. The court confirmed the setting aside of the award and held that the parties' agreement on procedural issues takes priority over the tribunal's procedural discretion and could not be overridden by the tribunal's decision.[35]

34 See Swiss Supreme Court decision 4A_277/2017 of 28 August 2017. The Supreme Court did not however consider that the petitioning party's right to be heard had been violated, and did not set aside the award, as the further conditions had not been met. See also M.E. Schneider, Technical Experts in international Arbitration, 11(3) *ASA Bull* 446, Section 18.

35 See OLG Frankfurt am Main decision of 17 February 2011, 26 Sch 13/10. The German Supreme Court, in its judgment of 2 October 2012, III ZB 8/11, dismissed the appeal against this decision.

Appendix 1

About the Authors

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Prof Dr Nathalie Voser is a partner in Schellenberg Wittmer's dispute resolution group in Zürich. She has acted as counsel and arbitrator in a vast number of cases under all major institutional rules. She also advises clients involved in complex multi-jurisdictional disputes before state courts.

Her practice focuses on construction, civil engineering and (renewable) energy-related projects, oil and gas projects, pharmaceutical and automotive industries. She has experience in both commercial arbitration and investment-treaty arbitration.

Nathalie currently advises and represents a large international company with regard to several disputes and arbitrations relating to a large-scale solar power plant. She also represents a manufacturer of a ferrochrome plant in an arbitration involving complex legal and technical issues.

Nathalie is president of the London Court of International Arbitration's (LCIA's) European Users Council, where she has been vice president of the LCIA Court since May 2017, and a member of the Court since 2016. She is a board member of the Swiss Arbitration Association and Swiss delegate in the ICC Arbitration and ADR Commission in Paris.

In 1988, Nathalie graduated *summa cum laude* from the University of Basel and was admitted to the Swiss Bar in 1990. In 1994 she earned an LLM with honours from Columbia University, New York. In 2014, she was awarded the title of professor in private law, arbitration law, private international law and comparative law by the University of Basel.

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Katherine Bell is a senior associate in Schellenberg Wittmer's Dispute Resolution group in Zurich. Her main areas of practice are domestic and international commercial litigation and arbitration. She has acted as counsel and legal secretary to arbitral tribunals in complex international arbitrations involving an array of matters, including large construction and engineering projects around the globe. Katherine also represents parties in commercial litigation proceedings before Swiss courts and assists clients in the drafting and negotiation of construction contracts.

Examples of Katherine's expertise in construction matters include: representing a multinational company in an ICC arbitration against a shipyard operator in a dispute over a contract regarding the delivery of technical equipment; representing a German party in ICC arbitration proceedings against an Eastern European party in a dispute under a series of supply and engineering contracts related to a metals processing plant; and acting as sole arbitrator in an arbitration under the Swiss Rules between an Austrian company and a Turkish company related to a dispute over the engineering and supply of electro-mechanical equipment.

Katherine regularly publishes in her areas of expertise. She is a member of several professional institutions, including the Swiss Arbitration Association, the Arbitral Women Association, the ICC Young Arbitrators Forum and YConstruction. In 2019, Katherine was recognised as a Future Leader by *Who's Who Legal* in construction.

Prior to joining Schellenberg Wittmer, Katherine was a contract manager for an international healthcare company based in Zug, Switzerland. Katherine was also a legal intern at the High Prosecutor's Office of the Canton of Berne. Thereafter she served as a law clerk with the District Court of Horgen, Zurich, where she was also chair of the conciliation authority for disputes relating to the tenancy and lease of property.

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Edited by the academics who run a course on construction contracts and arbitration at the School of International Arbitration, Global Arbitration Review's *The Guide to Construction Arbitration* brings together both substantive and procedural sides of the subject in one volume. Across four parts, it moves from explaining the mechanics of FIDIC contracts and particular procedural questions that arise at the disputes stage, to how to organise an effective arbitration, before ending with a section on the specifics of certain contracts and of key countries and regions. It has been written by leaders in the field from both the civil and common law worlds and other relevant professions.

This third edition is fully up to date with the new FIDIC suites, and has new chapters on parties, pricing, expert witnesses, claims resolution, dispute boards, ADR, agreements to arbitrate, investment treaty arbitration, and Brazil. It is a must-have for anyone seeking to improve their understanding of construction disputes or construction law.

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