

PCA Case No. 2023-01

IN THE MATTER OF AN ARBITRATION

-before-

THE COURT OF ARBITRATION CONSTITUTED  
IN ACCORDANCE WITH THE INDUS WATERS TREATY 1960

-between-

THE ISLAMIC REPUBLIC OF PAKISTAN

-and-

THE REPUBLIC OF INDIA

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CERTIFIED TRANSCRIPT  
(HEARING FOR THE FIRST PHASE ON THE MERITS)

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COURT OF ARBITRATION:

Professor Sean D. Murphy (Chairman)  
Professor Wouter Buytaert  
Mr. Jeffrey P. Minear  
Judge Awn Shawkat Al-Khasawneh  
Dr. Donald Blackmore

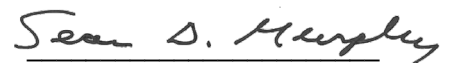
SECRETARIAT:

The Permanent Court of Arbitration

ON BEHALF OF THE COURT OF  
ARBITRATION:

CERTIFIED PURSUANT  
TO  
PARAGRAPH 19 OF ANNEXURE G

16 July 2024

  
\_\_\_\_\_  
Professor Sean D. Murphy  
Chairman

In the matter of an arbitration  
pursuant to Article IX and Annexure G  
of the Indus Waters Treaty 1960  
PCA Case No. 2023-01

Permanent Court of Arbitration  
Peace Palace  
The Hague  
The Netherlands

Day 7

Tuesday, 16 July 2024

Hearing of the First Phase on the Merits

Before:

PROFESSOR SEAN D MURPHY  
HE JUDGE AWN AL-KHASAWNEH  
DR DON BLACKMORE  
MR JEFFREY P MINEAR  
PROFESSOR WOUTER BUYTAERT

---

BETWEEN:

THE ISLAMIC REPUBLIC OF PAKISTAN  
-and-  
THE REPUBLIC OF INDIA

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Transcript produced by Trevor McGowan  
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09:16 1 Tuesday, 16 July 2024  
 2 (9.30 am)  
 3 THE CHAIRMAN: Good morning, everyone. It's good to see you  
 4 for our last day of this hearing.  
 5 I see that Sir Daniel is at the podium. We have  
 6 a new allocation of timing and presentations for today.  
 7 But I anticipate that, Sir Daniel, you'd like to perhaps  
 8 give us an orientation for where we are headed. So the  
 9 floor is yours.  
 10 SIR DANIEL: Thank you very much, Mr Chairman and members of  
 11 the Court.  
 12 Mr Chairman, I think the first order of business is  
 13 for me to introduce Mr Syed Ali Murtaza, who is the  
 14 Federal Secretary of the Ministry of Water Resources.  
 15 I think he was unexpectedly delayed in Islamabad, was  
 16 hoping to be here yesterday, but he's here today. You  
 17 will hear from him at the end of the day today, when he  
 18 will make some closing remarks and will also formally  
 19 present Pakistan's final submissions. So our welcome  
 20 and introduction to you.  
 21 THE CHAIRMAN: Thank you very much for that introduction.  
 22 It's a great pleasure to have you here, sir. I am  
 23 glad that you were able to make it for today, and we  
 24 look forward to hearing from you this afternoon.  
 25

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09:33 1 than come lower down in the running order. And Dr Miles  
 2 will both pick up on the discussion yesterday on pondage  
 3 but also develop the legal submissions.  
 4 We will then have Professor Webb on outlets,  
 5 spillways and intakes. We will have to see how the  
 6 questioning goes to Dr Morris and to Dr Miles. It may  
 7 be that Professor Webb comes on a little bit earlier or  
 8 that she's deferred to after lunch. In any event,  
 9 I think it's likely that she will split her submissions  
 10 across the lunch break.  
 11 Then I think we'll move to Mr Fietta, who will pick  
 12 up on some of the question 35(a) issues. You'll recall  
 13 yesterday we had Mr Fietta coming first in the day  
 14 [today], but we've concluded that it would be useful to  
 15 deal with the engineering and engineering-associated  
 16 legal issues in one block, and then have Mr Fietta.  
 17 Then I will make some final closing submissions,  
 18 picking up on a number of the questions that you asked  
 19 but which I was unable to get to yesterday.  
 20 And then we will close with final submissions from  
 21 Mr Murtaza.  
 22 That brings me to the two issues that I raise with  
 23 you preemptively at this point, in case it's useful for  
 24 you to consider and for there to be an exchange across  
 25 the bar.

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09:31 1 Second-Round Submissions Day 2 Orientation  
 2 SIR DANIEL: Mr Chairman, members of the Court, there are  
 3 two brief issues for me to address, and I won't detain  
 4 you very long from the microphone. The first is to make  
 5 one or two observations about the scheme. You've got it  
 6 on the sheet, but just to say one or two brief words.  
 7 And the second is to raise two issues which I would  
 8 ordinarily have deferred to the end of the day, but  
 9 I will raise them preemptively in case they may be  
 10 useful for you to consider in your deliberations during  
 11 the coffee break or over lunch, because they may have  
 12 some bearing on how we go forward.  
 13 Just having a look, first of all, at the scheme,  
 14 we've got the same line-up as we had yesterday in the  
 15 scheme that I presented to you yesterday, but the order  
 16 of appearance is slightly different.  
 17 We do pick up, after my remarks, with Dr Gregory  
 18 Morris. He was due to come on yesterday, but he will  
 19 start off today. And Dr Morris will be addressing  
 20 general issues that he was intending to address --  
 21 sedimentation, a number of other issues -- and may also  
 22 make one or two observations arising out of yesterday's  
 23 discussion on pondage, but we'll see how that goes.  
 24 We then propose to reorganise, as I was anticipating  
 25 yesterday, and have Dr Miles follow Dr Morris, rather

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09:34 1 The first one is that in the light of -- I think we  
 2 were heading in this direction in any event -- but in  
 3 the light of the discussions, the exchanges both last  
 4 week and yesterday, I think that we have concluded that  
 5 there would be utility in having post-hearing  
 6 submissions. We've identified a number of points which  
 7 it is evident that the Court is interested in and would  
 8 like to hear a little bit more about, and I think these  
 9 are issues which perhaps could not have been anticipated  
 10 prior to the hearing; not on our side and perhaps not on  
 11 the Court's side.  
 12 You didn't, for example, in your written questions  
 13 to us, raise questions about Annexure E or raise  
 14 questions about the methodology of calculation in  
 15 Baglihar, and we did not have a sense necessarily that  
 16 those would be looming large in your enquiry. So it  
 17 seemed to us that there would be some utility in having  
 18 brief post-hearing submissions that address, perhaps  
 19 amongst other things, the relevance of Annexure E to the  
 20 interpretation of Annexure D.  
 21 I will start that process in my submissions at the  
 22 end of the day. But as I will make clear when I start  
 23 to address Annexure E, I am going to be giving you, if  
 24 you like, a sitrep, orientating you towards Annexure E.  
 25 But I will be disciplined and not speculate when it

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09:36 1 comes to the interpretation of particular provisions of  
 2 Annexure E, because we will need to go back and have  
 3 a look at that. So that's one aspect that we thought  
 4 might usefully be addressed in a post-hearing  
 5 submission.  
 6 The second issue is the difference between  
 7 Pakistan's calculation of pondage advanced in Baglihar  
 8 and in the present case. I think I addressed that at  
 9 some length on Friday, and Dr Miles will come on and  
 10 look at that in a little bit more detail now. But to  
 11 the extent that you might find it useful actually to  
 12 have a piece of paper -- or more than just one piece of  
 13 paper -- which actually elaborates on this, we'd be  
 14 happy to do so in a post-hearing submission.  
 15 The third element that seemed appropriate for  
 16 post-hearing submissions, if for no other reason than  
 17 that this is very difficult to do on the hoof from the  
 18 microphone, is some further observations on the  
 19 calculation of pondage in the light of the Court's  
 20 questions. And I think, when one covers the pages,  
 21 I think this has been the issue that's attracted most of  
 22 the Court's questioning.  
 23 Then the other category may be: any other questions  
 24 that the Court may identify, perhaps in the course of  
 25 the next week or the next two weeks after the hearing.

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09:39 1 absent. Because ordinarily, had the Respondent been  
 2 here, there would have been a joining of arguments  
 3 between the two parties perhaps on two or three  
 4 occasions before we actually get to the end of the  
 5 hearing, two rounds of written pleadings and then in the  
 6 room; whereas what we have been faced with,  
 7 unsurprisingly, is that the first time that there is in  
 8 fact a joining of issues is when the Court is addressing  
 9 questions to us. So inevitably this is pointing out  
 10 issues that would benefit from further elucidation.  
 11 So that's the post-hearing submission point.  
 12 The second point, just to put on your deliberative  
 13 agenda, is that in the light, Mr Chairman, of the issues  
 14 that you raised last week about a preliminary partial  
 15 award, and of the exchange that we had across the bar  
 16 yesterday, it also occurred to us -- and I'm not making  
 17 this as a proposal but just raising this as an issue for  
 18 further engagement, if it would be useful to do so --  
 19 we considered that we should put on your agenda  
 20 the possibility of more than one partial award.  
 21 The Kishenganga arbitration obviously had four  
 22 decisions: there was the interim measures and there was  
 23 the clarificatory decision, but it also had two  
 24 substantive awards. There was the partial award, which  
 25 dealt with drawdown flushing, the big interpretative

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09:37 1 I know that you're going to be deliberating tomorrow,  
 2 and it may very well be that, in the light of what we've  
 3 said, you identify some issues that would be useful to  
 4 address.  
 5 We will come on, perhaps at the end of today, when  
 6 we deal with housekeeping matters, Mr Chairman, under  
 7 your control, to address questions of timing, whether  
 8 there should be limitations of length or whether there  
 9 should be any other considerations. But I thought that  
 10 it would be useful for you to have that thought in mind  
 11 already at the start of the day; also for the reason  
 12 that insofar as some of these issues may arise in the  
 13 course of the submissions of my colleagues to follow,  
 14 which would take them into this kind of terrain, I think  
 15 it is likely that they will say to you that, subject to  
 16 your directions on post-hearing submissions, a further  
 17 examination of those issues should be deferred to that.  
 18 Now I should just say briefly at this stage, for  
 19 those who are perhaps less familiar with international  
 20 arbitral proceedings such as this, that post-hearing  
 21 submissions are not a novelty. In fact, they're  
 22 a commonplace, so we are not proposing or suggesting  
 23 anything that would be unusual. And I think they are  
 24 not a novelty and are a commonplace perhaps in  
 25 particular in circumstances in which a respondent is

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09:40 1 issues and so on; and then there were some issues that  
 2 were deferred to the final award, notably the minimum  
 3 flow, the environmental flow.  
 4 Quite aside from the question of 35(a) and whether  
 5 35(a) might be usefully carved out, we can certainly see  
 6 that there would be both a reason and substantive  
 7 coherence, were the Court to decide that, for example,  
 8 you would like to deal with some of the broader  
 9 interpretative issues -- for example, the status of the  
 10 Treaty, perhaps the relationship of the Treaty  
 11 interpretation issues, perhaps even some of the sediment  
 12 control issues -- in an earlier award, and deferring  
 13 some issues on which you would like to deliberate  
 14 further, or you may even consider that you require  
 15 further information in due course, such as perhaps on  
 16 pondage.  
 17 And again I say, at the moment we are not making  
 18 an affirmative request to you on this, but we would like  
 19 to put this on your agenda so that you can, in the  
 20 course of the day, reflect on it. And if you would like  
 21 then to come back to this at the end of the day, when we  
 22 have the housekeeping issues, that's something that  
 23 we could address further.  
 24 So unless you've got any questions for me,  
 25 Mr Chairman, members of the Court, on this, I would then

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09:41 1 invite you to call Dr Morris to the microphone.  
 2 THE CHAIRMAN: Thank you, Sir Daniel. I think that what  
 3 you've just said is very clear, very helpful in terms of  
 4 our thinking through the course of the day and in  
 5 anticipation of the end of the hearing. I don't think  
 6 we have any questions for you right now in that regard,  
 7 but no doubt it will lead to a further exchange before  
 8 the day is through.  
 9 So if that's the case, then I think we are ready to  
 10 hear from Dr Morris.  
 11 SIR DANIEL: Thank you very much. (Pause)  
 12 (9.44 am)  
 13 Submissions on General Engineering Issues  
 14 DR MORRIS: (Slide 1) Good morning, members of the Court.  
 15 I would like to address you this morning to answer some  
 16 of the questions which were posed by the Court this past  
 17 Saturday.  
 18 (Slide 2) So what I will do is we will look at the  
 19 questions relating to the relationship between storage,  
 20 outlets and the ability to manipulate flows. And to  
 21 introduce that scheme, the presentation starts with  
 22 a brief overview of the impact of Treaty-compliant  
 23 design versus Indian designs as they relate to  
 24 controllable storage. And the presentation will then  
 25 turn to addressing specific questions posed as they

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09:46 1 kind of pulls them all together so that you can see the  
 2 successive and cumulative impact.  
 3 So the specification of excess pondage capacity is  
 4 the first link in the chain which amplifies the capacity  
 5 to store water.  
 6 Next, by selecting a tall dam strategy -- remember,  
 7 as opposed to smaller dams and longer tunnels -- each  
 8 successive depth increment below dead storage level  
 9 produces a large increase in controllable storage as  
 10 a result of the following design decisions.  
 11 First, extend the headrace tunnel directly into the  
 12 reservoir, instead of using a surface intake, which  
 13 would separate the intake from the tunnel entrance.  
 14 This then requires anti-vortexing submergence within the  
 15 reservoir, which violates the highest-level criteria,  
 16 because your surface intake would be the highest level;  
 17 whereas a tunnel intake going directly to the reservoir,  
 18 with an anti-vortexing depth requirement, placing that  
 19 requirement into the reservoir instead of downstream of  
 20 the intake, violates the highest-level criteria.  
 21 The next step is to place the orifice spillway  
 22 entirely below the intake, which again violates the  
 23 highest-level criteria.  
 24 And finally, maximise orifice spillway dimensions,  
 25 and thus its depth, by sizing it to pass the PMF flood,

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09:44 1 relate to flow manipulation, mitigation alternatives,  
 2 et cetera.  
 3 (Slide 3) So let's start by reviewing factors that  
 4 will influence controllable storage capacity. And that  
 5 basically starts with question 11(b), which reads:  
 6 "By contrast, if India's HEPs habitually have  
 7 low-level outlets, does the concern exist regardless of  
 8 whether the active storage at these HEPs is at (i) the  
 9 level permitted in the Baglihar Determination; or  
 10 (ii) the level advocated by Pakistan in this  
 11 proceeding?"  
 12 Pakistan is concerned about the existence of all  
 13 upstream storage, but it is considerably heightened by  
 14 the outlets at a deep level which are incorporated into  
 15 the Baglihar design. There is a remarkable difference  
 16 in the capacity of controllable storage when comparing  
 17 the Baglihar configuration against the level associated  
 18 with a design approach which Pakistan understands to be  
 19 Treaty-compliant.  
 20 To better understand that, let's look at some of the  
 21 design factors that cause the controllable storage to  
 22 become dramatically enlarged under India's design  
 23 approach.  
 24 (Slide 4) We basically have touched on these and  
 25 explained each of them in prior discussions, but this

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09:48 1 the design flood, rather than sizing it only for  
 2 sediment management. And this also violates the minimum  
 3 size criteria for outlets.  
 4 As you see on the left, each of those successively  
 5 makes the outlets go progressively deeper. So basically  
 6 what you're doing is you're stacking these components  
 7 one on top of the other.  
 8 Now, on slide 5 you can see the elevation capacity  
 9 curve that was previously introduced for Baglihar. And  
 10 on this curve, I've colour-coded each of the components  
 11 that we've just addressed and what their contribution is  
 12 to controllable storage capacity.  
 13 So first we have the operating pool, which,  
 14 according to the Neutral Expert's determination, was  
 15 32.56 million cubic metres. Then we have the  
 16 submergence for anti-vortexing. We then have, moving to  
 17 the left, the height of the intake itself, from the top  
 18 to the bottom. And then after that we have the orifice  
 19 spillway, ending up with a spillway crest at 808 metres,  
 20 for a total controllable storage of 209 million  
 21 cubic metres. On the little graphic on the upper right,  
 22 you can see how these things are vertically stacked one  
 23 on top of another.  
 24 Now, successful design approaches for surface  
 25 run-of-river intakes were well known 100 years ago.

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09:49 1 However, India has opted to use a design approach which  
 2 is more suited for storage reservoirs in its  
 3 run-of-river plants. This means tall dam, deep intakes,  
 4 with the various components stacked vertically, as the  
 5 little graphic shows you.  
 6 By situating the Indian components on the previously  
 7 presented elevation capacity curve, we can see how this  
 8 produces a controllable storage which is six times as  
 9 large as the operating pool. Remember, the operating  
 10 pool is supposed to be limited. And yet controllable  
 11 storage, as a result of these design decisions, is six  
 12 times larger than the operating pool.  
 13 (Slide 6) Now, if we move toward a Treaty-compliant  
 14 design that places both the intake and the spillway at  
 15 the highest level, we see that the results are quite  
 16 different. Let's look at a Treaty-compliant design  
 17 alternative for Baglihar which was developed by  
 18 Pakistan. This graphic was presented to you previously  
 19 by Peter Rae.  
 20 Note that the spillway and the surface intake all  
 21 fall within the same range: they're not stacked on top  
 22 of each other. You can see the spillways are in green,  
 23 and to the right you see the elevation of the intake.  
 24 The intake isn't actually located at that site: it's  
 25 actually perpendicular. But it's just shown there as

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09:53 1 ample opportunity to incorporate Treaty-compliant  
 2 high-level components into the design.  
 3 (Slide 8) Now, what are the consequences of India's  
 4 design choices? By selecting a high dam and short  
 5 tunnel design approach, India has complicated their  
 6 sediment management issues. They have not made it  
 7 impossible, but they have complicated it.  
 8 And in this regard, it's also important to recall  
 9 that economical design does not mean least-cost design.  
 10 And furthermore, India's reliance on their proclaimed  
 11 economical design for construction appears not to  
 12 consider the operational consequences and costs of their  
 13 design decisions.  
 14 In other words, economical design isn't just steel  
 15 and concrete. You have a project, and you have to  
 16 design it, build it, but you also have to operate it.  
 17 So an economical design: if you go and buy a really  
 18 cheap car that uses lots of gas, high fuel cost, it's  
 19 not an economical decision. The same thing with power  
 20 plants.  
 21 In the previous presentation, I presented a rough  
 22 estimate of the annual cost of flushing 20 million  
 23 tonnes of sediment from Baglihar, which included both  
 24 all the power which would not be generated because of  
 25 the water used for flushing, which is not passed through

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09:51 1 a graphic of the elevation in relationship to the  
 2 spillways.  
 3 (Slide 7) And what we will do now is we will look at  
 4 the impact that this design alternative has on  
 5 controllable storage capacity, as compared to India's  
 6 design approach, which was shown previously.  
 7 So if we use the Treaty-compliant design approach,  
 8 we will arrange the components at their highest level.  
 9 On this graphic, on the right-hand side, you can see on  
 10 the far right India's approach, which has stacked  
 11 outlets. And then adjacent to that, we see  
 12 a Treaty-compliant design approach which uses highest  
 13 level for the intake, highest level for the outlets.  
 14 And they're not stacked: they are basically occupying  
 15 the same vertical space.  
 16 So as you can see here, the rearrangement of the  
 17 various design elements produces a much higher elevation  
 18 for the spillway crest. And this higher elevation  
 19 reduces the controllable capacity by 98 million  
 20 cubic metres: it basically cuts it almost in half.  
 21 Now, this is just one design alternative; there are  
 22 of course other design alternatives. Every time you  
 23 design a dam, there are multiple different design  
 24 alternatives that the designers look at. But this  
 25 alternative shown here does demonstrate that there is

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09:54 1 the turbines, both at Baglihar and downstream at Salal,  
 2 which would not be putting high-concentration sediment  
 3 coming out of a flushing reservoir through its turbines.  
 4 And that cost came to about \$18 million a year, assuming  
 5 annual flushing, to achieve a sediment balance between  
 6 20 million tonnes a year coming in, and flushing out  
 7 20 million tonnes a year of sediment.  
 8 Now, if we use a discounted cash flow analysis, and  
 9 let's use a discount rate in the range of 5-7%, this  
 10 produces a present value of those \$18 million a year of  
 11 cost in the range of \$277-223 million for a 30-year  
 12 analysis horizon. So this basically says: it would be  
 13 economically justifiable to invest this amount of  
 14 capital in today's construction to avoid \$18 million  
 15 a year in additional costs.  
 16 So when you look at the operational consequences  
 17 versus design economy for construction, the operational  
 18 costs have a very large impact, and can justify very  
 19 significant design changes to avoid those costs.  
 20 So to summarise, adopting a Treaty-compliant design,  
 21 not only does it provide significant protection for  
 22 Pakistan, but it also may make economic sense for India  
 23 if the operational costs are fully taken into  
 24 consideration.  
 25 THE CHAIRMAN: Dr Morris, may I interrupt you just to ask

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09:57 1 two questions, which maybe you're still going to get to,  
 2 but perhaps not.  
 3 On the issue of cost, do I understand correctly you  
 4 do see the concept of economical design as introducing  
 5 the issue of costs?  
 6 DR MORRIS: Correct.  
 7 THE CHAIRMAN: It's just you're making the point that  
 8 it doesn't mean least cost necessarily takes you to the  
 9 proper place for an economical design and construction?  
 10 DR MORRIS: There are two points here.  
 11 First of all, as I think we've said before,  
 12 economical design is basically economical design within  
 13 the context of Treaty compliance. So you can't have  
 14 an economical automobile that doesn't comply with  
 15 regulations for safety, for gas mileage, et cetera. So  
 16 economical design that is compliant.  
 17 And number two, when India says it's cheaper to  
 18 build it this way, this may not be taking into  
 19 consideration -- and I haven't seen any evidence that  
 20 they do take into consideration -- the cost consequences  
 21 of operations over a long period of time.  
 22 So it's two components: it's the economical design  
 23 of a Treaty-compliant design, the economics of gaining  
 24 Treaty compliance in an economical manner; and taking  
 25 into consideration the substantial costs that are

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10:00 1 through the maloperation of a reservoir --  
 2 intentionally, unintentionally, for whatever reason --  
 3 it's a question of degree. I live in the Caribbean, so  
 4 let's pose this concept within the framework of  
 5 hurricanes.  
 6 We can have a category 1 or category 2 hurricane  
 7 that is consequential, is quite consequential. Wind  
 8 speed of category 1 would be 80 miles an hour, which is  
 9 125 kilometres per hour. We go to a category 5, we're  
 10 talking about 180 miles per hour, which is like  
 11 300 kilometres per hour. The difference is quite large.  
 12 But both fall within the framework of creating extensive  
 13 damage.  
 14 So while on one hand this will eliminate a portion  
 15 of the storage, you can see it as like bringing your  
 16 hurricane category from a 5 down to a 4, maybe to a 3.  
 17 It doesn't eliminate the problem but it makes it less  
 18 severe.  
 19 Does that answer your question?  
 20 THE CHAIRMAN: Yes, that's very helpful. Thank you.  
 21 Dr Blackmore.  
 22 DR BLACKMORE: Just going back to the net present value  
 23 calculation. I'm just interested in whether you've got  
 24 runner maintenance in there, through a change in the  
 25 cost related to the infrastructure itself because of

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09:58 1 associated with sediment management.  
 2 I mean, sediment management does not come for free  
 3 under any scenario. But what I want to point out here  
 4 is that India is pointing its plants towards flushing.  
 5 It can be a very costly undertaking, just in terms of  
 6 lost power, without considering any other costs.  
 7 THE CHAIRMAN: And my second question, it might help to go  
 8 back to the slide that has the Baglihar-compliant  
 9 version of the dam (slide 6). There you go.  
 10 And the question is this: assuming that you had this  
 11 type of dam at Baglihar, is the concern of weaponisation  
 12 still of great significance if the pondage level is set  
 13 not at the level that Pakistan sought in Baglihar, but  
 14 instead at the level the Neutral Expert set in Baglihar?  
 15 In other words, that differential in the pondage  
 16 between what Pakistan sought and what the Neutral Expert  
 17 called for in Baglihar, assuming that you had a dam of  
 18 this nature -- and we're looking at slide 6 -- with no  
 19 deep orifices, does that issue of weaponisation largely  
 20 dissipate, or are you saying that: no, it is still of  
 21 deep concern?  
 22 DR MORRIS: I'm going to touch on this. But I think that  
 23 since you asked the question, maybe I can bring it up  
 24 right now.  
 25 The weaponisation, or the impact to downstream users

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10:02 1 sediment. So is that included in your net present  
 2 value?  
 3 DR MORRIS: No. I have not looked at the alternatives.  
 4 I've just said that flushing itself has a big cost.  
 5 Now, if you were to do this analysis as a full  
 6 life-cycle analysis, you would of course look at what  
 7 it's going to cost for flushing, what it's going to cost  
 8 for sluicing. Under sluicing, you would have more  
 9 runner damage as compared to flushing, but you would  
 10 certainly have much less impact in terms of lost power.  
 11 So this is just to point out that the flushing can  
 12 be a very expensive operation. Because I think that  
 13 India is saying that, "We're choosing an economical  
 14 solution", but they're focusing on the construction  
 15 costs, and I have never anywhere seen India account for  
 16 the cost of flushing.  
 17 So I'm just bringing this to your attention: that  
 18 you say it's cheaper to build, but that's certainly not  
 19 the whole story.  
 20 DR BLACKMORE: Thank you.  
 21 THE CHAIRMAN: Very good. Thank you, Dr Morris. Please  
 22 proceed.  
 23 DR MORRIS: Okay, I think we had finished with slide 8 and  
 24 we're now going to slide 9.  
 25 Slide 9 addresses question 16(a):

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10:03 1 "Are low level outlets useful for sediment control  
 2 without reservoir draw down? If so, when and how?"  
 3 Absent drawdown, if you don't draw down, a low-level  
 4 outlet will only generate a scour cone immediately  
 5 upstream of the outlet, as schematically illustrated on  
 6 the left, using diagrams which were previously presented  
 7 in the Memorial and the site presentations. The scour  
 8 cone is very localised and does not extend a significant  
 9 distance upstream, as has been amply proven by operating  
 10 experience at many plants.  
 11 This type of outlet, without drawdown, may be used  
 12 to maintain the area immediately in front of the intake  
 13 free of sediment, using sediment sluices, and it can  
 14 draw both bed material and near-bed suspended material  
 15 away from the intake. In contrast, sluicing will entail  
 16 drawdown, but not necessarily below the dead storage  
 17 level.  
 18 So I think that answers the question about low-level  
 19 outlets. Any follow-up? Okay.  
 20 (Slide 10) The next question we'll look at is  
 21 a series of questions concerning flow manipulation on  
 22 the Western Rivers.  
 23 THE CHAIRMAN: Sorry, Dr Morris, I think there might be  
 24 a question about low-level outlets.  
 25 DR MORRIS: Okay. Perfect.

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10:06 1 you will generate high velocities along the entire  
 2 length of the reservoir.  
 3 DR BLACKMORE: Thank you.  
 4 DR MORRIS: Okay, now we'll go to slide 10. Question 11(a):  
 5 "Is it correct that this concern [of flow  
 6 manipulation] turns primarily on the existence of  
 7 low-level outlets? In other words, if India's HEPs have  
 8 no or relatively few ... outlets, is the concern largely  
 9 addressed?"  
 10 The capacity to control flows is not simply limited  
 11 to the low-level outlets. It begins with pondage, and  
 12 it runs through the entire design approach which is used  
 13 by India, which in the end produces deep and large  
 14 low-level outlets. They are all related as links in  
 15 a chain.  
 16 Because the largest danger to Pakistan is related to  
 17 interruption of flows during the dry season, and  
 18 particularly during the spring -- Kharif -- planting  
 19 season, as long as the outlets are large enough to empty  
 20 the reservoir during the dry season, it will be possible  
 21 to impose highly damaging flow restrictions downstream  
 22 by timing the refilling of the reservoirs.  
 23 So if the concern is a large flood downstream, you  
 24 need to have very, very large outlets. But even if the  
 25 outlet size is reduced to only that which is used for

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10:05 1 DR BLACKMORE: Sorry, can you just go back to that  
 2 slide (9), please.  
 3 Just listening to all the conversations the last few  
 4 days, when you've got a long reservoir, or a relatively  
 5 long reservoir, and you go down to drawdown flushing, do  
 6 you remove most of the coarse sediment at the top of the  
 7 reservoir? Do you remove the delta, or is that pretty  
 8 much stuck there?  
 9 DR MORRIS: If you flush using the highest discharges of the  
 10 year, you can move the delta.  
 11 DR BLACKMORE: Okay.  
 12 DR MORRIS: The problem is that you don't generally know  
 13 very far in advance when that is going to occur. And if  
 14 you are already at a high flow rate in the river, you  
 15 are very restricted in being able to draw down a deep  
 16 reservoir, because if the flow rates are already high,  
 17 by emptying that reservoir you would create downstream  
 18 flooding: you would amplify the flood.  
 19 So for that reason, flushing projects tend to have  
 20 the problem of accumulation of material in the delta, of  
 21 coarse material. They tend to have that problem. This  
 22 is one of the ways that sluicing gets around that.  
 23 Because in the Himalayan environment, you leave the  
 24 reservoir at a low level so that the flood, when it does  
 25 occur, the reservoir is already in a low level, so that

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10:08 1 sediment management during the low-flow season, they  
 2 will still be large enough to empty the reservoir.  
 3 Thus, the reduction of the size of the orifice  
 4 spillways to only the size needed for sediment  
 5 management provides relatively little benefit against  
 6 the restriction of flow during the irrigation season.  
 7 It would resolve the problem of being able to release  
 8 a huge flood downstream. But remember, that is not the  
 9 primary concern of Pakistan. The main concern is the  
 10 interruption of irrigation supply. And thus, the  
 11 problem with the low-level outlets is not so much their  
 12 size but their depth. By sizing the orifice spillways  
 13 to manage the PMF discharge, this necessarily makes them  
 14 not only larger but also deeper.  
 15 And just for the Court, when you have a low-level  
 16 outlet, you can't make it a long and skinny [one],  
 17 spread out horizontally, because these gates, if you  
 18 start to lift them, they can get a little bit crooked  
 19 and they can jam. So therefore, your low-level outlet  
 20 orifices have to be square or taller than they are wide.  
 21 You cannot have them wider than they are tall. So, you  
 22 have a specific limitation, in terms of pulling the  
 23 bottom up, by the geometry which is imposed on the gate  
 24 itself.  
 25 Moving on to slide 11, and question 11(c):

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10:10 1 "Is this concern ..."  
 2 The concern of flow manipulation:  
 3 "... altered by the existence of dams in a cascade?"  
 4 We did look at the Chenab cascade previously, and  
 5 it's presented here again. And as mentioned in my prior  
 6 presentation, the flow manipulation risk to Pakistan is  
 7 [the] cumulative volume of India's controllable storage.  
 8 It is not limited to a specific dam, because all the  
 9 dams along the cascade can be operated in a coordinated  
 10 manner.  
 11 And in fact, dams along a cascade for power  
 12 production are normally operated in a coordinated  
 13 manner. The storage dam upstream makes releases which  
 14 are run through the turbines at the storage dam and all  
 15 the downstream dams. So the manipulation or the  
 16 operation of a cascade as, you might say, a single unit  
 17 is a normal operating procedure.  
 18 So to answer the question, the concern about flow  
 19 manipulation is considerably heightened by the existence  
 20 of dams in a cascade because of this cumulative effect.  
 21 Moving to slide 12, and to question 12:  
 22 "What is Pakistan's capability to mitigate the harm  
 23 of India either withholding or flooding the waters on  
 24 the Western Rivers in the light of the re-regulating  
 25 effect of downstream reservoirs and the conjunctive use

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10:11 1 of groundwater and surface water? How has the  
 2 capability changed since the Treaty was concluded? To  
 3 what extent is this relevant to the proper  
 4 interpretation of the Treaty?"  
 5 These are basically three questions.  
 6 So first let's talk about the storage reservoirs,  
 7 and we can talk about Tarbela and Mangla, which can be  
 8 theoretically used to release additional flows to offset  
 9 the interruption of inflow from upstream.  
 10 Now, in reality, when you look at the historical  
 11 operation and the operating schedule for these  
 12 reservoirs, you see that they are already at a low level  
 13 at the beginning of the Kharif irrigation season. The  
 14 reservoir -- for instance, Tarbela -- is emptied at the  
 15 beginning of the Kharif irrigation season. So the  
 16 reservoir in Tarbela goes down at the same time that the  
 17 inflow is coming up, so that Tarbela basically empties,  
 18 and then the flow from the rivers comes up to compensate  
 19 for the now-empty reservoir being able to make very  
 20 little additional withdrawals.  
 21 When we have seen drought events in Pakistan, the  
 22 spring flows are low. And this creates a crisis for the  
 23 irrigators because the reservoirs don't have the  
 24 additional capacity to offset the low inflow rate  
 25 because they are already empty.

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10:13 1 So in reality, the operating schedule for these  
 2 reservoirs will see them at a low level at the beginning  
 3 of the Kharif season, and they provide downstream flows  
 4 as a combination of release from storage plus the  
 5 inflow. And because there is this reliance on  
 6 inflows -- especially during drought years you see the  
 7 impact -- the irrigation situation becomes critical even  
 8 in the command areas that are supplied by these  
 9 reservoirs. So therefore, if the upstream manipulation  
 10 of inflows creates a drought situation, it cannot be  
 11 compensated by Pakistan's existing reservoirs.  
 12 So the presence of these reservoirs, which have  
 13 already been drawn down at the beginning of the  
 14 irrigation season, or at the very beginning they are  
 15 drawn down, it does not offer a viable mitigation  
 16 alternative.  
 17 THE CHAIRMAN: Dr Blackmore.  
 18 DR BLACKMORE: So I've understood all of that, so thank you.  
 19 What about groundwater at 1.25?  
 20 DR MORRIS: Coming to that.  
 21 DR BLACKMORE: Okay, thank you.  
 22 DR MORRIS: Next slide (13).  
 23 The greatest risk to Pakistan is the interruption of  
 24 surface water supply. Some irrigated areas have the  
 25 option of using wells to mitigate the lack of surface

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10:15 1 water, but this is far from universally available.  
 2 It's already been pointed out that the most critical  
 3 period is the Kharif, the spring irrigation season, when  
 4 virtually the entire irrigated area is being planted,  
 5 and this is a period of naturally low water  
 6 availability.  
 7 The canal system was originally set up to maximise  
 8 acreage under irrigation; in other words, put the water  
 9 to as many people as possible. And the original designs  
 10 assume that approximately one third of the land would be  
 11 fallow; in other words, not irrigated in a particular  
 12 year.  
 13 You have to remember that before the implementation  
 14 of these irrigation systems, much of the areas which are  
 15 today irrigated were what they would call basically  
 16 "wasteland": it's land that -- scrubby vegetation,  
 17 camels and drought-resistant vegetation and wildlife.  
 18 And this was completely changed by the introduction of  
 19 irrigation. So with the objective of maximising the  
 20 irrigation area and the number of people who benefit  
 21 from this, it was expanded in the largest area possible,  
 22 rather than optimising the flow on a more limited area.  
 23 There is very little fallow land today, and the  
 24 irrigation area has also approximately doubled since the  
 25 Treaty. And this results in restricted water

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10:17 1 availability to the irrigators, especially during the  
 2 spring, when the flows are starting to come up and the  
 3 reservoirs have already delivered their water.  
 4 Now, diverting surface water from one area to  
 5 another to mitigate supply interruptions is simply  
 6 shifting geographically the impact from one area to  
 7 another. It's like robbing Peter to pay Paul type of  
 8 a situation. You don't have the water, and so you're  
 9 trying to mitigate a problem of supply interruption by  
 10 taking water away from areas that are already  
 11 water-limited.  
 12 Now, with respect to question 12, "How has the  
 13 capability changed since the Treaty was concluded?",  
 14 Pakistan has seen the number of wells being greatly  
 15 increased since the Treaty. They were a minor component  
 16 of irrigation in 1960, but now number about 1.1 million  
 17 wells. In this same period, irrigated area  
 18 approximately doubled.  
 19 However, the option to mitigate by increasing  
 20 groundwater pumping is not available to all areas  
 21 because not all fields are watered by wells. And as  
 22 a rule, even those areas that do have wells, the  
 23 groundwater quality tends to be inferior -- and in some  
 24 areas is quite inferior -- to the quality of surface  
 25 water with respect to irrigation use. And this is the

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10:18 1 problem of salinisation, which is a rather severe  
 2 problem throughout the Indus Basin.  
 3 One of the unfortunate consequences of the  
 4 increasing well count has been that we're now seeing  
 5 over-draughting of groundwater, which results in  
 6 significant lowering of the groundwater table. And  
 7 we're also seeing deterioration in groundwater quality.  
 8 The groundwater system is actually sustained by the  
 9 seepage of high-quality surface water into the aquifer,  
 10 through the bottom, of earthen canals. Canal seepage is  
 11 a primary source of recharge. So this makes even  
 12 Pakistan's groundwater supplies highly dependent on  
 13 canal water. So an interruption in canal water supply  
 14 does have an impact on groundwater.  
 15 Of course, the groundwater storage is large compared  
 16 to the storage in the surface reservoirs. But they do  
 17 not have the capacity to say, "We'll turn the surface  
 18 water off and we can supply everything from groundwater  
 19 wells", because not all fields have wells available, and  
 20 the well pumping is not sized to completely replace  
 21 surface water.  
 22 So therefore, the mitigation potential of relying on  
 23 wells in lieu of surface water is not a viable  
 24 mitigation alternative. In other words, you can't rely  
 25 on that to eliminate that risk: there is still

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10:20 1 considerable risk.  
 2 THE CHAIRMAN: Dr Blackmore.  
 3 DR BLACKMORE: I think I'd just ask you whether you'd add  
 4 the word "universal" in there. It's not a universal  
 5 solution to -- like, we're talking groundwater systems  
 6 which are not going to be affected by a six-week change  
 7 in supply, right?  
 8 DR MORRIS: Mm-hm.  
 9 DR BLACKMORE: So we've got an immense volume of water:  
 10 100/200/300 cubic kilometres at least, probably more  
 11 available. We do have the salinity problem.  
 12 So we do have some buffering that's available.  
 13 I take your point. But I think the issue for me was:  
 14 it's not universally available, but it is available to  
 15 a significant number of irrigators.  
 16 DR MORRIS: Yes.  
 17 DR BLACKMORE: That's the only point I wanted to make.  
 18 DR MORRIS: And I hope I didn't relay this wrong. It does  
 19 have mitigation potential, but it is not the solution.  
 20 Is that ...?  
 21 DR BLACKMORE: Yes.  
 22 DR MORRIS: Okay, perfect.  
 23 DR BLACKMORE: I just wanted to get to the point that it's  
 24 available, but it's not universal.  
 25 DR MORRIS: Exactly. It is viable, but it's not of

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10:21 1 sufficient scale to solve the problem. You can't just  
 2 say, "I'm going to turn the surface water on and  
 3 I'll just cover everything with wells".  
 4 (Slide 15) Relevance of mitigation to the Treaty.  
 5 This continues question 12:  
 6 "To what extent is this relevant to the proper  
 7 interpretation of the Treaty?"  
 8 The proper interpretation of the Treaty is  
 9 a question which will be addressed by the legal team.  
 10 But from an engineering perspective, I could offer  
 11 a couple of thoughts.  
 12 First, the Treaty is structured to impose design  
 13 criteria on India to sustain hydrology of the flows  
 14 entering Pakistan, and to minimise potential to  
 15 manipulate these flows to the detriment of the  
 16 downstream riparian.  
 17 The Treaty's limitations are not measured against  
 18 Pakistan's ability to mitigate a non-compliant action by  
 19 India. And if this were so, it would be analogous to  
 20 saying: I'm going to judge a thief who's robbed things  
 21 from my house, but the judge will mitigate their  
 22 judgment to the extent that the victim of the robbery  
 23 has the funds to replace the stolen goods.  
 24 So we can't say that the fact that Pakistan can  
 25 mitigate this to a certain extent should come into the

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10:23 1 interpretation of what India is allowed to do under the  
 2 Treaty. It's like saying that India can, for instance,  
 3 do things cheaper, but there will be downstream  
 4 consequences which will have to be borne by Pakistan.  
 5 Pakistan has neither the surplus water nor the  
 6 mitigation alternatives needed to avoid very damaging  
 7 consequences were irrigation supplies to be interrupted.  
 8 They can mitigate to a certain extent through wells, but  
 9 you cannot avoid very damaging consequences. And this  
 10 is what we have seen when they do have drought: that  
 11 there are many, many farmers -- and it's all over the  
 12 newspapers, the multiple and severe problems and crop  
 13 losses that are caused by the unavailability of surface  
 14 water.  
 15 (Slide 16) Now we'll go to question 9:  
 16 "What effect would it have on Dr Morris' simulation  
 17 if the potential storage or the allowance of storage  
 18 pursuant to Annexure E were taken into account?"  
 19 And of course Annexure E relates to the storage  
 20 plants, which allocates a certain storage volume to  
 21 India, independent of whatever they do with the  
 22 run-of-river plants.  
 23 The flow manipulation model that was previously  
 24 introduced conceptually examined the potential impact of  
 25 managing 400 million cubic metres of capacity to

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10:27 1 is consistent with this operational practice. And it's  
 2 also consistent with the region's hydrology, since most  
 3 of the runoff is generated from higher elevations.  
 4 Remember, the precipitation is much higher in the  
 5 mountains -- winter snowfall -- than it is down in the  
 6 watershed.  
 7 The total capacity of all Chenab storage works  
 8 authorised by Annexure E, paragraph 7 is 2,098 million  
 9 cubic metres; that's 1.7 million acre-feet. This is  
 10 equivalent to about 9% of the mean annual flow at the  
 11 Dhamkund gauge, which is located just below Baglihar.  
 12 So in relation to the total flow of the river, the  
 13 storage capacity is rather limited. But because these  
 14 dams are in the upper part of the watershed, they will  
 15 be capturing much more than 9% of the mean annual flow  
 16 at the storage dam location upstream. But it just gives  
 17 you an idea of their impact with respect to the total  
 18 river flow.  
 19 (Slide 17) Now, of this 2,098 million cubic metres  
 20 of storage capacity that is available to India under  
 21 Annexure E, only 108 is currently under development:  
 22 that's at Pakal Dul. However, the combination of steep  
 23 river slopes and narrow valleys results in smaller  
 24 reservoir volumes moving upstream.  
 25 For example, at Pakal Dul, the depth from the bottom

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10:25 1 interrupt the flows released below Baglihar Dam. With  
 2 that simulation, only 130 million cubic metres of the  
 3 total controllable capacity is located at the Pakal Dul  
 4 storage reservoir, which has an assigned live storage of  
 5 108 million cubic metres. The controllable storage is  
 6 larger than live storage because the controllable  
 7 storage is being calculated from the sill elevation of  
 8 the low-level outlet, not over the defined operating  
 9 range, as defined by India.  
 10 Continuing to use the Chenab as an example, the  
 11 Chenab Annexure E plants are located in the upper  
 12 watershed, either on tributaries or on the Chenab Main  
 13 above Naunut. Naunut is about 3 kilometres upstream of  
 14 the Kiru Dam, which we saw schematically shown over in  
 15 [slide 11]. You can see Kiru Dam upstream on the --  
 16 it's right here (indicating). So about 3 kilometres  
 17 upstream from there, they can start building storage  
 18 dams. And of course Pakal Dul is on a tributary.  
 19 The normal practice is to use upstream storage dams  
 20 to deliver regulated flows to the downstream  
 21 run-of-river plants, thereby generating a regulated  
 22 schedule at the storage dam's power plant plus the  
 23 downstream run-of-river power plants. So the Treaty's  
 24 requirement that the storage reservoirs be placed  
 25 upstream, either in tributaries or on the Chenab Main,

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10:29 1 of the reservoir to the top of the full pondage level is  
 2 123 metres. At Baglihar, it's 130 metres. So there's  
 3 not much difference in depth at the dam. Yet, because  
 4 Pakal Dul is on a much steeper section of the river,  
 5 narrower valley, the gross storage volume of Pakal Dul  
 6 is only 130 million cubic metres versus 400 at Baglihar.  
 7 So approximately the same height, but maybe Baglihar has  
 8 two and a half times as much storage.  
 9 When we review the conditions in the Chenab  
 10 watershed, it suggests that it would be extremely  
 11 challenging, and probably not practical, for India to  
 12 develop the full magnitude of this allocated storage.  
 13 However, if India were to develop, say, additional  
 14 storage equivalent to four times Pakal Dul, for a total  
 15 controllable storage of 5 times 130, equal to  
 16 650 million cubic metres, within their Annexure E  
 17 reservoirs, the ability to impair water deliveries would  
 18 be increased significantly.  
 19 Combining the allowed storage plus controllable  
 20 capacity throughout the cascade, a controllable volume  
 21 on the order of 1,000 million cubic metres -- in other  
 22 words, 1 cubic kilometre of water -- might be  
 23 envisioned, of which about half of this would be  
 24 authorised storage and the remaining half would be  
 25 additional controllable storage produced by the use of

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10:31 1 deep spillways.  
 2 If we look at this impact, we could anticipate that  
 3 it would more than double the period of water supply  
 4 interruption as compared to the prior simulation. So  
 5 more storage capacity, a longer period during which the  
 6 supply can be interrupted downstream.  
 7 (Slide 18) So in closing, I would just like to make  
 8 a couple of final --  
 9 THE CHAIRMAN: Dr Morris, before you close, I think we may  
 10 have some questions on what you've just discussed.  
 11 DR MORRIS: Sure.  
 12 THE CHAIRMAN: Professor Buytaert.  
 13 PROFESSOR BUYTAERT: Thank you, Dr Morris.  
 14 I think two slides ago -- you don't have to go back,  
 15 but you mentioned this value of 9% of the mean annual  
 16 flow.  
 17 DR MORRIS: Yes.  
 18 PROFESSOR BUYTAERT: Of course, the critical period here is  
 19 the dry-season flow. Do you have an appreciation of  
 20 what percentage of the dry-season flow this would  
 21 constitute?  
 22 DR MORRIS: I will have to get that to you. I can calculate  
 23 it easily, but I don't have it on my head.  
 24 PROFESSOR BUYTAERT: My gut feeling would be that it might  
 25 well be pretty much the entire dry-season flow. So that

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10:33 1 certainly there.  
 2 PROFESSOR BUYTAERT: Thank you.  
 3 THE CHAIRMAN: Dr Morris, I have a question for you. And  
 4 maybe I will observe, for both you and the other  
 5 speakers, that if you begin speaking before we've  
 6 finished asking the question --  
 7 DR MORRIS: Oh.  
 8 THE CHAIRMAN: -- it presents a problem, particularly for  
 9 the reporter, to capture the question in the transcript.  
 10 So although you may have the answer at the tip of your  
 11 fingertips, I'd encourage you to wait until we've  
 12 finished speaking before you begin speaking.  
 13 With respect to my question, you provided some  
 14 calculations relating to the total storage available on,  
 15 say, the Chenab. As I look at Annexure E and at that  
 16 paragraph 7 table, my understanding is that we have  
 17 a column of "General Storage Capacity" and then we have  
 18 a separate column of "Power Storage Capacity" and then  
 19 a third column of "Flood Storage Capacity" for each of  
 20 the river components, essentially.  
 21 And my question to you is: am I correct in  
 22 understanding that these are cumulative capacities in  
 23 paragraph 7? The general storage capacity would be  
 24 added to the power storage capacity and to the flood  
 25 storage capacity for each of the relevant rivers listed,

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10:32 1 order of magnitude you would agree with?  
 2 DR MORRIS: It would be quite large. Remember, on the other  
 3 simulation, with 400 million cubic metres, we are  
 4 showing that you could interrupt the flow in the  
 5 February/March period for nearly a month. So if we go  
 6 to a larger capacity -- for instance, 1,000 million  
 7 cubic metres instead of 400 -- we could probably  
 8 anticipate an interruption for about two months.  
 9 PROFESSOR BUYTAERT: Thank you.  
 10 DR MORRIS: It's not quite that easy, because of course the  
 11 storages are at different places in the watershed. And  
 12 again, that's why I say this is a conceptual model. But  
 13 it gives you the idea of the potential magnitude of  
 14 impacts.  
 15 PROFESSOR BUYTAERT: Okay. Given that you calculated it  
 16 with 1,000 million cubic metres, given that the  
 17 potential is twice as high, that obviously would further  
 18 increase the time period.  
 19 DR MORRIS: Correct. So we have the potential for a lot of  
 20 risk to Pakistan with the existing condition, which was  
 21 simulated in the model. I shouldn't say "existing",  
 22 because it's existing plus under-construction  
 23 reservoirs. So this is the condition which will prevail  
 24 at some not-too-far-in-the-future point. But the  
 25 potential to make it considerably more problematic is

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10:35 1 to get a grand total storage capacity at the end of the  
 2 day?  
 3 DR MORRIS: The answer is: yes and no.  
 4 First of all, the flood control storage should not  
 5 be counted with the other two, because flood control  
 6 storage is a temporary storage.  
 7 For instance, there are flood control dams that  
 8 consist of a large dam and an orifice spillway with no  
 9 gates at the bottom: it's just a hole in the bottom of  
 10 the dam, and it's designed to accumulate water and then  
 11 allow the water to be released. So it's uncontrollable  
 12 storage, so it doesn't count as storage that can be used  
 13 for any beneficial use. And flood control is of course  
 14 also beneficial to Pakistan, to the extent that  
 15 downstream flooding is reduced.  
 16 The other two: it is cumulative, the differentiation  
 17 being between that the general storage of course has  
 18 a variety of things it can be used for, whereas the  
 19 power storage is only for power production.  
 20 THE CHAIRMAN: So when I look at something like the Jhelum,  
 21 excluding the Jhelum Main, and it has three columns,  
 22 you're saying that the design of the storage work does  
 23 or does not allow for a maximum capacity of all three  
 24 columns?  
 25 DR MORRIS: No, it allows for the maximum capacity of the

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10:36 1 power storage plus the general storage. And the flood  
 2 storage would be, for instance, this flood surcharge  
 3 capacity that is mentioned in the Treaty.  
 4 THE CHAIRMAN: Very good. That's helpful.  
 5 Now, you --  
 6 SIR DANIEL: Mr Chairman, I wonder -- this is not to do  
 7 anything other than perhaps make a perhaps helpful  
 8 observation.  
 9 There are, of course, in paragraph 2 of Annexure E,  
 10 the definitions of all of these phrases, and they will  
 11 make it absolutely clear what the relationship is, for  
 12 example, between conservation storage capacity and power  
 13 storage capacity and general storage capacity and flood  
 14 storage capacity.  
 15 So I just point this out because Dr Morris may be  
 16 responding to your question in the light of his slides,  
 17 but we can't lose sight of the legal interpretation  
 18 that's given on the face of the Treaty.  
 19 THE CHAIRMAN: Thank you, Sir Daniel. Yes, I'm quite aware  
 20 of those definitions, and they are quite helpful.  
 21 Dr Morris had provided particular numbers on his slides  
 22 that were representing particular storage capacity  
 23 within a particular river system, and I was simply  
 24 trying to clarify where those numbers were coming from.  
 25 I won't ask you to do the math now, Dr Morris, but

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10:40 1 And all of that is just to lead to the question of:  
 2 if that's correct, if India is entitled to build storage  
 3 works that could have that capacity -- and I understand  
 4 your point that practically that may not be possible --  
 5 but if they could have that capacity of storage, does  
 6 that give us any insights into or perspective on the  
 7 issue of the pondage at the Annexure D hydroelectric  
 8 plants?  
 9 In other words, it seems like a very big amount that  
 10 they are able to store under Annexure E as compared to  
 11 what we've been talking about in terms of the pondage in  
 12 Annexure D.  
 13 DR MORRIS: Okay. I would like to address that in  
 14 two points.  
 15 First of all, what we have seen to date is large  
 16 run-of-river plants. We have seen very limited  
 17 development within the allocation of storage which is  
 18 given to India.  
 19 The second thing that I wanted to just make clear is  
 20 that when I did my calculations, the flood storage is  
 21 not included.  
 22 THE CHAIRMAN: Fine.  
 23 DR MORRIS: Okay. I thought I had another thought, but  
 24 it's ...  
 25 THE CHAIRMAN: Okay. I was, I suppose, just probing

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10:38 1 when I add up the numbers in the general storage  
 2 capacity for these various rivers, I get to something in  
 3 the nature of 1,540 million cubic metres. Does that  
 4 sound like it might be correct?  
 5 DR MORRIS: On the Chenab -- and I don't have it in front of  
 6 me here -- if I'm remembering correctly, there was 0.6  
 7 of power, another 0.6 of power, and 0.5 of general, for  
 8 a total of 1.7 million cubic metres; which then converts  
 9 over into 2.098 cubic kilometres.  
 10 THE CHAIRMAN: Yes, I won't pursue the matter. I think  
 11 you're focused on the Chenab --  
 12 DR MORRIS: Yes.  
 13 THE CHAIRMAN: -- and that is perfectly fine.  
 14 I think I was just noting that the overall magnitude  
 15 of general storage capacity, if I converted properly  
 16 acre-feet into cubic metres -- which I may not have done  
 17 properly, but if I did do it properly -- we reach  
 18 something like a general storage capacity of all of  
 19 these storage units of about 1.54 billion cubic metres;  
 20 and then for power storage capacity, a total of  
 21 1.97 billion cubic metres. And let's just assume that  
 22 I've added those up right. When you then look at the  
 23 grand total storage and power capacity, we're getting  
 24 upwards of 3.5 billion cubic metres, which seems like  
 25 a big amount to me.

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10:41 1 a little bit about whether the magnitude of that  
 2 Annexure E storage gives us any insights into what was  
 3 being thought about for levels of pondage in Annexure D.  
 4 But perhaps you don't have thoughts on that.  
 5 DR MORRIS: I don't know what was in the minds of the people  
 6 drafting the Treaty. I know that it was a contentious  
 7 process and that they arrived at certain, let's call it,  
 8 compromises.  
 9 But with respect to pondage, you also need to  
 10 remember that pondage is a first step in this chain of  
 11 design decisions that produces the very large  
 12 controllable storage. Remember, in the case of  
 13 Baglihar, the pondage is a first step which, at the end,  
 14 ends up with a controllable storage of six times  
 15 pondage.  
 16 So we can't step back and say: well, pondage,  
 17 because it's a small number, it's not important.  
 18 Because what we're seeing is pondage is the first link  
 19 in a chain that amplifies, amplifies, amplifies the  
 20 storage volume, so our controllable storage becomes very  
 21 large.  
 22 So in that respect, I would say that pondage, even  
 23 though it looks small, is very significant.  
 24 THE CHAIRMAN: That's helpful.  
 25 Do you know, coming from an engineering perspective,

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10:43 1 how difficult it would be to transform a hydroelectric  
 2 plant that falls under Annexure D into a plant that  
 3 would fall under Annexure E instead? Annexure E does  
 4 allow for power storage capacity; arguably it has  
 5 differing constraints that might be more favourable to  
 6 what India might want to do.  
 7 Is there an interchangeability between these  
 8 two plants?  
 9 DR MORRIS: To a certain extent.  
 10 Let's use Baglihar as an example. Remember, as  
 11 I mentioned, that Pakal Dul and Baglihar are about the  
 12 same height of dam. Pakal Dul is storage; Baglihar is  
 13 classified as run-of-river.  
 14 If I were to change and design Baglihar as a storage  
 15 dam, first of all, I would consider that I'm going to  
 16 have deep drawdown, because to have storage, I have to  
 17 draw the water down to release the storage. So that  
 18 means that my intake for my power intake has to go down  
 19 deep. So I can't have an intake at the level that it  
 20 currently is; it has to move down. Which of course is  
 21 what they've done at Pakal Dul: the intake is  
 22 established based on the lowest operating level in the  
 23 reservoir.  
 24 So I don't remember the numbers, but at Baglihar the  
 25 operating range is like 4 metres; and at Pakal Dul, it's

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10:44 1 probably -- I can't remember off the top of my head, but  
 2 it's probably maybe 60 metres. So you have a very  
 3 substantial difference in the range.  
 4 From the intake down to the power plant, the only  
 5 difference is that you would select your turbines to  
 6 operate over a wider range of head, as opposed to  
 7 selecting a turbine to be optimal at a very limited  
 8 range of head.  
 9 And of course within the dam, you would not  
 10 necessarily have to have your flood discharge outlets at  
 11 a low level; you could keep them up on top. But you  
 12 would have to put your sediment management outlet at  
 13 a level which is corresponding in relationship to your  
 14 lowest drawdown level.  
 15 So basically the modifications are, I would say --  
 16 let's call them minor within the overall scheme of  
 17 things. Your tunnel alignment of course is going to be  
 18 a little bit different because your intake is lower.  
 19 But these are not a big deal.  
 20 But there also comes back -- and since the tunnel is  
 21 already constructed at Baglihar, you cannot change that  
 22 plant once it's built, because then you would have to  
 23 relocate the intake to a lower level. And that's  
 24 certainly not trivial.  
 25 THE CHAIRMAN: It may not be relevant to the issues before

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10:46 1 us, but it's just a question in the back of my mind. If  
 2 India knows that it's having difficulties with Pakistan  
 3 with respect to Annexure D matters, including level of  
 4 pondage and so on, is there any reason why they couldn't  
 5 simply switch over to Annexure E and do largely the same  
 6 thing that they are seeking to do in a manner that would  
 7 be regarded as perhaps Treaty-compliant?  
 8 DR MORRIS: From me, speaking as an engineer, it seems  
 9 logical to do that. But I'm sure there's a lot of other  
 10 things that go into that decision which I do not know.  
 11 THE CHAIRMAN: Very good.  
 12 We do have a question 10 that plays out some of  
 13 these issues with respect to the switch that occurred  
 14 for Kishenganga. I take it that's not a part of your  
 15 presentation, and we'll come to Sir Daniel. So we'll  
 16 hold off on thoughts about that.  
 17 Any other questions from ...?  
 18 Dr Blackmore.  
 19 DR BLACKMORE: I just want to take the Annexure D  
 20 conversation just a little bit further, just so that  
 21 I understand it.  
 22 So in a storage dam, you elevate it up, say, to  
 23 100 units of elevation, 100 metres. But for a large  
 24 part of the year, you're going to use that storage at  
 25 some stage, and very difficult to recover it once you go

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10:47 1 into the dry season. So what you've traded off is:  
 2 you've lowered your storage, because you use that  
 3 storage for power production in whatever way you see  
 4 fit; but then you're going to run your storage at a much  
 5 lower level, and may have traded off 60 metres of head  
 6 at your turbines for all of the dry season, because you  
 7 can't recover it.  
 8 So there's a very large economic penalty for that  
 9 configuration vis-à-vis if you ran it as run-of-river  
 10 dam, where you're forced to run it higher but you get  
 11 the benefit of the head. And as you know, energy is all  
 12 about the amount of head you can run through a turbine.  
 13 So I'm just wondering whether it's a self-correcting  
 14 issue. The economics won't be as attractive for  
 15 a storage dam because once you've used that storage,  
 16 you have also used a significant amount of head on your  
 17 plant.  
 18 DR MORRIS: When you talk about the storage dams, you need  
 19 to remember they're in a cascade. For instance,  
 20 Pakal Dul will discharge directly into the reservoir for  
 21 Dul Hasti. Dul Hasti will discharge its turbine  
 22 immediately upstream of Ratle. Ratle discharges then  
 23 immediately downstream into Baglihar, which in turn gets  
 24 picked up at Salal. So we have Pakal Dul, Dul Hasti,  
 25 Ratle, Baglihar, Salal: five plants.

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10:49 1 So part of the economic consideration is: how am I  
 2 going to operate this storage not just at my first  
 3 plant, but to operate through the entire cascade?  
 4 Because the water which is released upstream of course  
 5 flows downstream and can be picked up by all the  
 6 downstream plants.  
 7 So you would normally fill it up, and it would be  
 8 full, let's say, at the end of September. And from  
 9 September on, if I was to operate the system to try and  
 10 maximise my benefits, I would run the plant not as  
 11 a baseload, but I would run it during the peaking hours  
 12 at near full capacity. You are probably going to have  
 13 one of your turbines out of service for maintenance, so  
 14 you're going to have n-1 turbines available at all your  
 15 plants. And I would arrange my releases so that I could  
 16 produce full power, or near full power, during some  
 17 period of hours at all the plants.  
 18 And gradually, over the period of months I would be  
 19 doing this, as you correctly indicated, I would be  
 20 losing power at Pakal Dul, the upstream storage plant,  
 21 but all the other plants would be operating at full  
 22 head. So as a result, by the time I get to, let's say,  
 23 April, my reservoir is empty and I can start the refill  
 24 process.  
 25 DR BLACKMORE: Thank you.

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10:52 1 sediment management problems are of its own making: it's  
 2 the result of their design choices; it does not  
 3 originate in the requirements of the Treaty. You can  
 4 develop projects in compliance with the Treaty. India's  
 5 design simply has gone another direction.  
 6 Thank you, gentlemen.  
 7 THE CHAIRMAN: Professor Buytaert.  
 8 (10.53 am)  
 9 Questions from THE COURT  
 10 PROFESSOR BUYTAERT: Thank you, Dr Morris.  
 11 So you discussed at slide 9 low-level outlets  
 12 without drawdown. And in your presentation last week,  
 13 you mentioned density current venting. Does that come  
 14 into play here? You didn't mention it here. Is that  
 15 also an option, to use low-level outlets without  
 16 drawdown?  
 17 DR MORRIS: Yes, I should have put that on. They could be  
 18 used for turbidity current venting.  
 19 PROFESSOR BUYTAERT: Thank you. That's all.  
 20 THE CHAIRMAN: Very good. I don't think we have any other  
 21 questions for you, Dr Morris. So thank you very much  
 22 for your presentation. It was very helpful.  
 23 You had several metaphors: you threw our direction  
 24 from hurricanes to thieves to Peter robbing Paul,  
 25 I think very helpful in explaining the points you were

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10:51 1 THE CHAIRMAN: Very good. Thank you, Dr Morris. Please  
 2 proceed with your presentation.  
 3 DR MORRIS: Okay. To summarise, I just want to leave you  
 4 with a couple of thoughts.  
 5 (Slide 18) First of all, sediment management  
 6 strategies were being employed at run-of-river plants  
 7 100 years ago. And while the Himalaya does indeed have  
 8 high sediment loads, India has decided to approach the  
 9 problem of operating its run-of-river plants as if they  
 10 were storage plants, incorporating deep intakes, even  
 11 deeper large capacity spillways, and developing  
 12 a physical setup that's tailor-made for sediment  
 13 flushing, not sediment sluicing.  
 14 India has avoided implementing proven run-of-river  
 15 strategies that permit sediment management in compliance  
 16 with the Treaty's highest level and minimum size  
 17 requirements for intakes and outlets. Thus, India has  
 18 selected designs that lend themselves to flushing, while  
 19 making it more difficult -- though not impossible --  
 20 to manage sediment by other proven means. And with  
 21 respect to that, I would again recall the example of  
 22 Kali Gandaki, which handles double the sediment load  
 23 that we have at Baglihar, and it is handling that  
 24 successfully.  
 25 Now, this leads us to the final thought: India's

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10:54 1 trying to get across. Thank you.  
 2 DR MORRIS: Thank you. It's been a pleasure.  
 3 THE CHAIRMAN: So I believe at this point we are quite close  
 4 to our break. I'm thinking we might go ahead and take  
 5 the break, and come back in a half hour and start up  
 6 with Dr Miles.  
 7 SIR DANIEL: Thank you, Mr Chairman.  
 8 THE CHAIRMAN: Very good. So let's reconvene at 11.25.  
 9 (10.54 am)  
 10 (A short break)  
 11 (11.24 am)  
 12 THE CHAIRMAN: Alright, I think we are reassembled. I see  
 13 that Dr Miles is at the podium. So please proceed with  
 14 your presentation.  
 15 Submissions on pondage  
 16 DR MILES: (Slide 1) Mr Chairman, members of the Court, it's  
 17 again a pleasure to be before you. In my submissions  
 18 today, I will be addressing the legal aspects of the  
 19 Court's questions regarding the calculation of maximum  
 20 pondage under paragraph 8(c) of Annexure D.  
 21 (Slide 2) So getting right to it. I propose to deal  
 22 with the matters as follows.  
 23 First -- I should have mentioned I would be dealing  
 24 with this -- I will be dealing with the Court's sole  
 25 question on freeboard -- that's question 17 -- hopefully

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11:25 1 drawing a line under that and giving the Court what it  
 2 needs to commence its deliberations on that topic.  
 3 Second, I will turn to the question of pondage. The  
 4 Court's questions on these matters are arranged in the  
 5 order in which they arose, I believe, in the course of  
 6 my earlier submissions, but I'll tackle them  
 7 thematically.  
 8 I'll first deal with some quick questions regarding  
 9 Pakistan's interpretation of the Treaty provisions that  
 10 are the focus of India's pondage calculation. That's  
 11 paragraphs 2(c) and 15 of Annexure D, which are  
 12 addressed in questions 25 and 28.  
 13 I will then address the Court's question concerning  
 14 the basis of Pakistan's six sufficiency criteria for  
 15 assessing which is the correct mechanism for the  
 16 calculation of the pondage under the Treaty; that was  
 17 question 19.  
 18 I'll then address the Court's question regarding the  
 19 evolution of the parties' position on pondage  
 20 calculation over time, question 18.  
 21 I'll then turn to a document which I think is going  
 22 to be presented to you by way of a handout, if you don't  
 23 have it already. It will be handed out in due course,  
 24 at the appropriate time. That's Appendix VII of P-0546,  
 25 which is India's pondage calculations for the Kiru HEP.

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11:27 1 Now, in Pakistan's submission, we've got two answers  
 2 to this question: one based on answering the question as  
 3 posed, and another on clarifying what Pakistan believes  
 4 is the premise behind it.  
 5 So the first answer: to take question 17 at face  
 6 value, it essentially asks whether, in the case of  
 7 an ungated spillway, fusegates, flashboards or stoplogs  
 8 can be considered an integral part of the HEP design.  
 9 Each of these, as I explained in my first-round  
 10 submissions on this topic, is a barrier that allows the  
 11 spillway to be blocked; and when that barrier is in  
 12 place, the operating pool may be overfilled.  
 13 (Slide 4) Now, to answer this question, we need to  
 14 draw a distinction between the three possible types of  
 15 barrier. You'll recognise the image of the NJHEP on the  
 16 slide, with the stoplogs marked. And you'll recall that  
 17 stoplogs are usually used to allow a gated spillway to  
 18 be dewatered for maintenance purposes.  
 19 These are not ordinarily part of an ungated  
 20 spillway -- they could be -- but not normally part of  
 21 an ungated spillway, as that kind of spillway has no  
 22 moving parts and therefore little need for maintenance.  
 23 But assuming India does want to use them on  
 24 an ungated spillway, the short point is that stoplogs  
 25 will always be an integral part of the HEP's design

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11:26 1 And I'll answer the Court's four-part question in  
 2 relation to that, which was question 29.  
 3 Staying with the theme of the parties' different  
 4 approaches, I'll then answer the Court's question on the  
 5 divide between them on the meaning of the phrases  
 6 "required for Firm Power" in paragraph 8(c) of  
 7 Annexure D and "corresponding to" in paragraph 2(i) of  
 8 the same, being the definition of "Firm Power". That's  
 9 question 24.  
 10 And finally, I will address the two alternative  
 11 methodologies that the Court has kindly presented to us  
 12 for the calculation of maximum pondage in the context of  
 13 the language of the Treaty; that's question 30.  
 14 So a few things to get to, but I'm hoping to be able  
 15 to finish in the time allotted to me.  
 16 (Slide 3) Starting with question 17, which is on the  
 17 slide:  
 18 "Pakistan posits that freeboard must be restricted  
 19 even with an ungated spillway at Full Pondage Level  
 20 because the level of controllable storage could ... be  
 21 later increased with fusegates, flashboards, or  
 22 stoplogs. Would such instruments constitute part of  
 23 '[t]he works themselves' for the purposes of  
 24 paragraph 8(a) if they were not an integral part of the  
 25 HEP design?"

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11:28 1 because they're inserted into the spillway on rails, and  
 2 those rails must be placed in the dam wall during  
 3 construction. That's again marked on the slide.  
 4 (Slide 5) Now, the situation is a bit different for  
 5 fusegates and for flashboards, which do not require  
 6 specially installed rails to work. And we can see that  
 7 from the image on the slide. I believe this is another  
 8 Australian dam -- which I do prefer, if at all  
 9 possible! -- but I may be wrong about that.  
 10 As you can see there, the fusegates have been added  
 11 to this dam in order to raise the crest of an ungated  
 12 spillway and convert it from a standard free overflow  
 13 spillway into a labyrinth spillway. In the process, the  
 14 crest of the original spillway has been blocked to the  
 15 height of the fusegates, which now reach to the top of  
 16 the dam.  
 17 Now, if the dam operator wishes, they can close the  
 18 orifice spillway -- which you'll see I have marked in  
 19 the bottom left-hand side there -- and the water level  
 20 and the operating pool will rise until it spills over  
 21 the new spillway crest.  
 22 The fusegates are not automatically, we would say,  
 23 an integral part of the works, and structures like this  
 24 may not, therefore, be part of "the works" within the  
 25 meaning of paragraph 8(a).

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11:30 1 But this then brings me to my second part of the  
 2 answer, concerning a clarification of the premise of the  
 3 question, or perhaps a clarification of Pakistan's case  
 4 in response to the question.  
 5 As you can see from the picture on the slide,  
 6 it's difficult to think of an ungated spillway into  
 7 which fusegates could not be fitted; particularly just  
 8 a normal free-overflow spillway, with just a completely  
 9 flat crest.  
 10 And you'll recall that the Neutral Expert in  
 11 Baglihar (PLA-2), at 5.8.1, said that "the artificial  
 12 raising of the full pondage level" through fusegates and  
 13 flashboards is "a generally accepted way of improving  
 14 the performance of an existing dam".  
 15 So although not necessarily an integral part of the  
 16 works, dam designers will almost always have flashgates  
 17 or fuseboards in mind when the dam itself is designed.  
 18 Indeed, that's the whole point of fusegates: they can be  
 19 fitted on any ungated spillway, effectively as  
 20 an after-market part. And it is this potential for  
 21 fusegates to be fitted that underpins Pakistan's case on  
 22 paragraph 8(a) so far as it pertains to ungated  
 23 spillways.  
 24 The problem with the spillway is not the fusegates:  
 25 it's the fact that India could, with very little effort,

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11:32 1 storage, or you can have big fusegates that could go up  
 2 to the entirety of the top of the dam, blocking the  
 3 entire spillway.  
 4 So given that fusegates, as you rightly point out,  
 5 come in all shapes and sizes, and given that they're  
 6 obviously contemplated as a normal part of ungated  
 7 spillway design, that justifies, in my submission,  
 8 Pakistan's case on this.  
 9 THE CHAIRMAN: So, Dr Miles, if I understand correctly, with  
 10 respect to at least the fusegates and the flashboards,  
 11 your thinking is that it should give us some perspective  
 12 on why freeboards should be limited in nature.  
 13 Is it also the case though that assuming the dam is  
 14 designed with a limited freeboard, if India were to then  
 15 use fusegates or flashboards to artificially raise the  
 16 pondage, that doesn't violate the Treaty because this  
 17 doesn't fall within the scope of paragraph 2(a)?  
 18 DR MILES: Bear in mind that what the Treaty requires is  
 19 two things: it requires, first of all, a free overflow  
 20 at the full pondage level; and then it requires  
 21 a limited freeboard. So what would happen if you  
 22 blocked the spillway itself is that you would lose that  
 23 free overflow function, effectively. And that's exactly  
 24 what's happened here. I mean, you would get a free  
 25 overflow function, but it would be at a higher flood

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11:31 1 using very well-recognised means, block the spillway by  
 2 installing fusegates and permitting overfilling. And  
 3 it's that potential of the works as constructed that  
 4 justifies the limitation on the freeboard under  
 5 paragraph 8(a). An ungated spillway comes with  
 6 an automatic possibility of being blocked, and therefore  
 7 the freeboard above it must be limited to limit the  
 8 potential for abuse.  
 9 That concludes my answer on question 17.  
 10 THE CHAIRMAN: Dr Blackmore.  
 11 DR MILES: Please.  
 12 DR BLACKMORE: I don't know this dam in Australia, so that's  
 13 not the reason for the question. So I'm just looking at  
 14 the fusegate design here. And as I see this, there's  
 15 a dozen different ways to put fusegates on, but this one  
 16 here looks like it's been set out to double the existing  
 17 spillway crest level so that when the reservoir is  
 18 overflowing, it's got a much longer crest.  
 19 DR MILES: Precisely.  
 20 DR BLACKMORE: So I'm just wondering whether that's your  
 21 observation as well.  
 22 DR MILES: It is. And indeed, Dr Blackmore, that  
 23 demonstrates sort of the threat that fusegates pose in  
 24 this respect. I mean, you can obviously have small  
 25 fusegates, which only give you a little bit of extra

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11:34 1 level; it would be considerably higher.  
 2 DR BLACKMORE: (Inaudible).  
 3 DR MILES: Quite right. Yes.  
 4 THE CHAIRMAN: Okay, thank you. I think we have no other  
 5 questions on freeboard.  
 6 DR MILES: Wonderful.  
 7 (Slide 6) Moving on to pondage, and the first block  
 8 of the questions that the Court has asked. Now, in both  
 9 of these, the Court asked about the role that the two  
 10 provisions on which India's calculation depends will  
 11 play under Pakistan's approach, and that's of course  
 12 paragraphs 2(c) and 15 of Annexure D.  
 13 (Slide 7) I will start with paragraph 2(c), which is  
 14 back on the slide. And I've also put up paragraph 2(i)  
 15 of Annexure D so we can see the way that these  
 16 provisions are juxtaposed. And I've got four points to  
 17 make in relation to the interaction between these two  
 18 provisions and paragraph 8(c), with which we are all  
 19 familiar.  
 20 The first one is that paragraphs 2(c) and 2(i) are  
 21 based on premises that are fundamentally different in  
 22 character. Paragraph 2(c) is the definition of  
 23 "Pondage". It's based on the load placed on the plant  
 24 by India, whether driven by a load curve or simply  
 25 because India feels like placing a particular load on

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11:35 1 a particular HEP.  
 2 And the load placed -- or capable of being placed --  
 3 on a plant by India is a feature of its installed  
 4 capacity. That installed capacity, as Mr Rae explored,  
 5 represents India's decision about the plant's planned  
 6 contribution to the grid. It's entirely a matter for  
 7 India's unilateral determination, and it can have no  
 8 realistic bearing whatsoever on the hydrology of the  
 9 river.  
 10 Paragraph 2(i), conversely, is the definition of  
 11 "Firm Power". Now, as we can see by the reference to  
 12 the minimum mean discharge, and as we've explored  
 13 together several times over the course of this hearing,  
 14 it's based on river hydrology: on what the river can  
 15 provide when flowing in its natural configuration,  
 16 averaged over a very long period of time. It can't be  
 17 altered by India and it can't be altered by Pakistan.  
 18 It simply is; it's entirely objective.  
 19 Second, paragraph 8(c) is the design criterion that  
 20 drives the calculation of pondage. By contrast,  
 21 paragraph 2(c) is the definition of "Pondage". It  
 22 defines its use, not the means by which it's calculated.  
 23 Paragraph 8(c), with the reference to "Firm Power", is  
 24 controlling the calculation, based again on hydrology.  
 25 If we can return to the analogy of pondage as a battery,

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11:37 1 And it clarifies -- and we can see that from the  
 2 slide -- that the purpose of pondage is solely for power  
 3 production, and not for any other purpose.  
 4 Paragraph 2(c) confirms, for example, that India can't  
 5 use its pondage for irrigation or regulation of  
 6 downstream flows or for sediment management or any other  
 7 purpose. It's just about power production.  
 8 (Slide 8) Now turning to paragraph 15, which is back  
 9 on the slide.  
 10 Now, in relation to this, Professor Buytaert asked  
 11 a frankly excellent question about the role that  
 12 paragraph 15 can be expected to play under paragraph 8's  
 13 approach to pondage, particularly within the various  
 14 daily limits set by that provision.  
 15 The overarching point is that on a plain reading of  
 16 paragraph 8(c), paragraph 15 is irrelevant to the  
 17 calculation of pondage. I think Mr Minear made that  
 18 point yesterday or at least, when discussing what he  
 19 believed Pakistan's case to be, he mentioned that point.  
 20 And that is indeed Pakistan's case.  
 21 Paragraph 8(c) is a criterion of design.  
 22 Paragraph 15 is an operational parameter. If the  
 23 drafters of the Treaty had intended for paragraph 15 to  
 24 be a criterion of design, it or something like it would  
 25 be in paragraph 8(c).

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11:36 1 paragraph 8(c) tells India how big the battery is;  
 2 paragraph 2(c) tells India what it can use the battery  
 3 for.  
 4 And when you think about it, it's obvious why that's  
 5 the case. And I really can't put it better than  
 6 Sir Daniel did in closing on Friday. That's transcript  
 7 reference Day 5, page 228, line 24 to page 229, line 21.  
 8 Sir Daniel said this:  
 9 "It cannot be the place of the plant in India's  
 10 unilateral conception, in a dark room somewhere in  
 11 Delhi, about how much a particular plant is going to be  
 12 providing to the grid, the load of the plant, because  
 13 that could change from day to day to day, or India could  
 14 come to Pakistan and say, 'This is the amount that we  
 15 consider that the plant in question will provide to the  
 16 grid', and give a massively overinflated amount, just in  
 17 order to get the pondage; and then to use the  
 18 pondage ..."  
 19 And my third point: nevertheless, it is plain that,  
 20 on Pakistan's conception, 2(c) does have a role to play  
 21 in the general concept of pondage, and that's because it  
 22 defines the operating concept of pondage. And this is  
 23 entirely consistent with the principle of effectiveness,  
 24 which is what the Court asked about in relation to  
 25 paragraph 2(c).

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11:39 1 But as an operational rule -- and this is coming on  
 2 to Professor Buytaert's point -- paragraph 15 retains  
 3 a more than meaningful operational role under Pakistan's  
 4 formulation. There will be important situations in the  
 5 operation of the HEP where it will come into play.  
 6 Now, as the Court will recall, Pakistan's  
 7 formulation in terms of its outcome, its overall result,  
 8 allows India an operating pool fixed by reference to  
 9 12 hours of inflow at 50% of the minimum mean discharge,  
 10 and that amount is then doubled, per the provisions of  
 11 paragraph 8(c).  
 12 Now, even on India's formulation of the pondage,  
 13 paragraph 15 is going to be irrelevant for large parts  
 14 of the year. During the wet season, the flow will be so  
 15 large that even India's larger operating pools will not  
 16 be able to retain even a fraction of the water coming  
 17 down the river on a given day. From this we know that  
 18 paragraph 15 is only intended to become relevant during  
 19 low-flow periods in the dry season. It's intended to  
 20 protect Pakistan's hydrology in the depths of winter.  
 21 It's a safety valve.  
 22 (Slide 9) This is confirmed, and  
 23 Professor Buytaert's very valid question answered, when  
 24 we crunch the numbers on this using the Kiru HEP as  
 25 a testbed. You'll recall that there are three different

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11:40 1 schedules potentially set by paragraph 15, and I'd like  
 2 to explain the relevance of each on Pakistan's  
 3 formulation.  
 4 Professor Buytaert asked specifically, I think,  
 5 about the 30/130 storage schedule in particular, but  
 6 we'll deal with all three of them, just to confirm the  
 7 global relevance.  
 8 Now, Kiru HEP. The MMD at the Kiru HEP, as we can  
 9 see on the slide, is 65.3 cubic metres per second. On  
 10 Pakistan's formulation, this results in an operating  
 11 pool of 2.82 million cubic metres, which is the  
 12 equivalent of 12 hours of MMD inflow, so 12 hours of 50%  
 13 MMD, doubled.  
 14 The Kiru is on the Chenab above Ramban, and so the  
 15 daily limits set by paragraph 15(ii) apply. On any  
 16 given day, Kiru HEP is not going to be able to store  
 17 more than 50% of daily inflow in its operating pool.  
 18 When the river is flowing at the MMD, the daily  
 19 inflow is going to be 5.64 million cubic metres. That's  
 20 24 hours of MMD inflow. And that's precisely twice the  
 21 size of the Kiru HEP's operating pool, on Pakistan's  
 22 formulation.  
 23 Put another way, on Pakistan's approach, when the  
 24 Chenab's daily flow averages the MMD, India will be able  
 25 to store exactly 50% of the flow in the Kiru HEP's

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11:43 1 (Slide 10) On the slide, we have the table set out  
 2 in Appendix E1 of our Memorial, which contains the  
 3 25-year averages of the 10-day periods that make up the  
 4 MMD calculation, and I've highlighted in yellow the  
 5 entries that drop below 46.65 cubic metres per second.  
 6 And we can see -- this is on the 25 years of data  
 7 presented when the Kiru HEP was revealed to Pakistan --  
 8 this has actually happened a few times.  
 9 So in 1975, the Chenab -- reimagined for present  
 10 purposes as the Jhelum -- averaged a flow below  
 11 46.65 cubic metres for the ten-day period between 11 and  
 12 20 February. And that's unsurprisingly the period  
 13 ultimately selected as the MMD. It was only 42.2 cubic  
 14 metres per second.  
 15 In 1995, another very dry year, the river averaged  
 16 below 46.65 cubic metres per second for two ten-day  
 17 periods: 11 to 20 February -- the MMD period again --  
 18 and 21 to 28 February. And it's worth noting -- and you  
 19 can sort of see this in some of the green highlighting  
 20 around 1995 -- that it was averaging perilously close to  
 21 that amount for the entire period between January and  
 22 early March.  
 23 In 2007, another very dry year, we've got an average  
 24 flow below our target amount for two further periods:  
 25 11 to 20 February and 21 to 28 February.

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11:42 1 operating pool, thus meeting the limit that  
 2 paragraph 15(ii) sets. Put another way, on this  
 3 formulation, on Pakistan's formulation, paragraph 15(ii)  
 4 will become engaged whenever the Chenab drops below the  
 5 minimum mean discharge. And that, I think Mr Rae said  
 6 yesterday, is going to be about 13% of the time in any  
 7 given year.  
 8 That's what the mathematicians would call  
 9 an interesting coincidence. I don't put it any higher  
 10 than that. But it is an interesting coincidence.  
 11 But let's imagine -- and this is answering  
 12 Professor Buytaert's question -- that the Kiru HEP is on  
 13 the Jhelum, where the generic limit of clause (b) of the  
 14 paragraph 15 chapeau applies. So now we're in  
 15 a situation in which the Kiru HEP can't store more than  
 16 70% of the daily flow.  
 17 For 2.82 million cubic metres of operating pool, for  
 18 the Kiru HEP to store 70% of the daily flow, the total  
 19 daily inflow would need to be less than 4.03 million  
 20 cubic metres. And that implies a flow rate of  
 21 46.65 cubic metres per second.  
 22 Now, this comes on to Professor Buytaert's question,  
 23 which is: how often does that occur? Well, the answer  
 24 seems to be: relatively infrequently, but frequently  
 25 enough to worry about if you're Pakistan.

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11:45 1 Then finally, in 2011, we have the lowest average in  
 2 the record. For the period 11 to 20 February, the  
 3 Chenab averaged a very low 36.6 cubic metres per second.  
 4 It's important to recall that these are ten-day  
 5 averages. So in these periods, we're looking likely at  
 6 multiple days on which the Chenab was flowing below our  
 7 target amount. And where we have periods that are just  
 8 above that amount -- so anything below 50 cubic metres  
 9 a second, for example, which I've marked in green --  
 10 there are probably days lurking within that period where  
 11 the flow is below our target amount.  
 12 So if we look at the table on the slide -- and  
 13 conjecture is dangerous, so bear with me -- it rather  
 14 looks like the limit in clause (b) of the chapeau of  
 15 paragraph 15 has been set deliberately by reference to  
 16 hydrology.  
 17 The MMD, as I mentioned on Friday -- and this is at  
 18 transcript Day 5, page 48, line 9 to page 49, line 8 --  
 19 is not predicated on a worst case scenario. Rather,  
 20 it is predicated on producing, through averaging,  
 21 a reasonably low flow rate that could be expected to be  
 22 encountered by the HEP in any given year. And if I'm  
 23 right, then the default storage schedule at paragraph 15  
 24 is predicated on a severe low-flow scenario.  
 25 If I can put this in simple terms, and again

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11:46 1 speculating perhaps a little bit, it seems that the  
 2 drafters could have looked at the hydrological record,  
 3 figured out where the semi-regular historical minimums  
 4 are, and set clause (b) of the chapeau to guarantee that  
 5 these critical, but entirely foreseeable, minimal flow  
 6 conditions had some protection for Pakistan's hydrology.  
 7 Now, just to complete the analysis -- going back  
 8 here (slide 8) -- just to complete the analysis here,  
 9 we've got our third storage schedule:  
 10 "... where [the] Plant is located at a site on the  
 11 Chenab Main below Ramban, the volume of water received  
 12 in the river upstream of the Plant in any one period of  
 13 24 hours shall be delivered into the river below the  
 14 Plant within the same period of 24 hours ..."  
 15 Now, that essentially means that the HEP cannot  
 16 store water overnight. So it's going to be required to  
 17 limit India in any situation in which the HEP has  
 18 an operating pool.  
 19 The objective here, as the Chenab flows towards the  
 20 Line of Control, is to ensure that variations in flow  
 21 are evened out as the river enters Pakistan. And that  
 22 dovetails, if you recall, with paragraph 8(g) of  
 23 Annexure D, which provides that if a HEP is constructed  
 24 on the Chenab Main below Kotru, which is a little bit  
 25 downstream from Ramban, it must include a regulating

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11:47 1 basin, defined in paragraph 2(h) as a basin intended to  
 2 even out variations from turbine discharge.  
 3 So if I can pull the threads of all of this  
 4 together.  
 5 On Pakistan's analysis, paragraph 15 is still given  
 6 a very important role. It's by no means redundant, as  
 7 the question asks. In its default clause (b) mode, it  
 8 protects Pakistan's hydrology in critical low-flow  
 9 periods where the river flows below the MMD. Its limits  
 10 will be tested in any particularly dry year, and it is  
 11 therefore of vital importance. It protects Pakistan's  
 12 hydrology when that hydrology is most in need of  
 13 protection.  
 14 Within the Chenab, however, a special schedule is  
 15 set out.  
 16 Above Ramban, India cannot store more than 50% of  
 17 the daily flow of the rivers. On Pakistan's  
 18 formulation, the operating pool is precisely 50% of the  
 19 daily inflow when the river flows at the MMD level.  
 20 This means that India will be operationally limited by  
 21 paragraph 15 in any sub-MMD conditions.  
 22 Below Ramban, India is effectively prohibited from  
 23 storing overnight, and so paragraph 15 will be required  
 24 to limit pondage operations in any conditions. The  
 25 effect is to turn the entirety of the Chenab below

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11:49 1 Ramban into a big regulating basin, evening out  
 2 fluctuations in low-flow conditions before the river  
 3 crosses into Pakistan.  
 4 This brings me to the end of the answer on  
 5 paragraph 15. Pakistan's methodology renders  
 6 paragraph 15 far from irrelevant in practice; in fact,  
 7 it remains vitally important to guarantee Pakistan's  
 8 hydrology during the dry season.  
 9 THE CHAIRMAN: Questions?  
 10 I don't think there are any questions. Thank you,  
 11 Dr Miles.  
 12 DR MILES: Thank you so much.  
 13 (Slide 11) If I can turn now to question 19, which  
 14 is on the slide. The Court has asked Pakistan to inform  
 15 it of the basis in the Treaty for each of the six  
 16 sufficiency criteria that it has adopted.  
 17 Now, to clarify, Pakistan's sufficiency criteria are  
 18 not driven by any specific language within the Treaty,  
 19 and I'm sorry if I gave that impression in my  
 20 presentation last week. Rather, they arise out of the  
 21 basic obligation, expressed in VCLT Article 31(1), to  
 22 interpret treaties in good faith.  
 23 As the ICJ explained in *Gabcikovo-Nagymaros* --  
 24 that's PLA-0094 at paragraph 142 -- this principle:  
 25 "... obliges the parties to apply [a treaty] in

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11:50 1 a reasonable way and in such a manner as its purpose can  
 2 be realised."  
 3 Pakistan's sufficiency criteria are manifestations  
 4 of this principle. In short, Pakistan's view is that  
 5 when interpreting paragraph 8(c) frustration of any of  
 6 the sufficiency criteria violates this principle, such  
 7 that any interpretation is *ex facie* incorrect.  
 8 I believe I described them as truths self-evident in  
 9 the fabric of the Treaty: that was perhaps a poetic  
 10 flourish that prompted this question. But in reality,  
 11 they form part of the wider principles of effectiveness  
 12 and good faith in treaty interpretation.  
 13 They take as their touchstone that if there is  
 14 something in the Treaty that you should point to, it  
 15 would be Article III of the Treaty, which is the rule  
 16 from which Annexure D and paragraph 8(c) derogate, and  
 17 the statement by the Kishenganga Court at paragraph 504  
 18 of its partial award that:  
 19 "... one of the primary objectives of the Treaty is  
 20 to limit the storage of water by India on the Western  
 21 Rivers ..."  
 22 And:  
 23 "... Annexure D likewise restricts the permissible  
 24 volume of pondage, and pegs this limit to power  
 25 generation at the minimum mean discharge calculated at

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11:51 1 the site."  
 2 To this we may add a further element, drawn from the  
 3 Treaty's wider object and purpose as reflected,  
 4 inter alia, in the preamble, which was to set down clear  
 5 rules for the cooperative settlement of disputes  
 6 concerning allocations of the waters of the Eastern and  
 7 Western Rivers. So this was a treaty that was intended  
 8 to settle disagreements, not propagate them.  
 9 If I might be permitted just to draw back the  
 10 curtain a little bit for the Court, Pakistan developed  
 11 these sufficiency criteria as part of a process of  
 12 determining the correct approach to the calculation of  
 13 pondage. The process was to start with a blank piece of  
 14 paper and develop the criteria, and then test them  
 15 against every approach its internal and external teams  
 16 could think of, including Pakistan's earlier approach  
 17 and India's current approach. At the end of this  
 18 process of elimination, only the approach that Pakistan  
 19 presents was left standing.  
 20 (Slide 12) I just want to take the Court back  
 21 through the criteria to see how they are all  
 22 manifestations of the principle of good faith and treaty  
 23 interpretation as applied to this particular Treaty.  
 24 So criterion 1, if you recall: the methodology must  
 25 be capable of coming up with a unique and fixed volume

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11:54 1 And to a certain extent, it's a reflection of the  
 2 language at paragraph 8(c) itself. This is a simple --  
 3 even sparse -- form of words. While this has created  
 4 issues over the years, it does indicate, at least to  
 5 a degree, that this simple, sparse formulation had  
 6 something simple in mind from an engineering standpoint  
 7 when these words were put on the page.  
 8 Criterion 3: the methodology should not require or  
 9 warrant constant correction, or be rendered unfit for  
 10 purpose by future developments.  
 11 This criterion arises from the realisation that the  
 12 plant will be, as I think Professor Buytaert pointed  
 13 out, in operation for an extended period of time. The  
 14 calculation cannot, therefore, be premised on an integer  
 15 that will be quickly rendered out of date on its own  
 16 terms, such as a load curve for a particular month or  
 17 a particular year. And Professor Buytaert and  
 18 I explored how a wider forecast may well prove suitable  
 19 under this particular sufficiency criterion.  
 20 Criterion 4: the result that the methodology  
 21 produces should not be overly sensitive to input data  
 22 such that data errors or discrepancies would  
 23 significantly alter the outcome, opening the door to  
 24 further disagreement.  
 25 Pakistan sees this as a reflection of the Treaty's

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11:52 1 of maximum pondage for each HEP, derived from the MMD at  
 2 the site of the HEP in question.  
 3 This one is self-evident, in Pakistan's submission.  
 4 To a certain extent, it is located in the wording of  
 5 paragraph 8(c) itself. But clearly the methodology has  
 6 to come up with a single number, as the volume of the  
 7 operating pool can only be a single number, not a range  
 8 of numbers that may be subject to further discussion.  
 9 That would propagate disagreement between the parties,  
 10 not settle it.  
 11 Criterion 2: the methodology must be capable of  
 12 generating a maximum pondage figure using tools that  
 13 would be available at the time the Treaty was drafted,  
 14 1960. And this means that we are limited effectively to  
 15 graphical computation. And the computation must be  
 16 capable of being done in a straightforward manner.  
 17 Now, plainly, any good faith interpretation of  
 18 paragraph 8 that wants to be reasonable cannot rely on  
 19 means of computation that had not been invented in 1960.  
 20 And as for the requirement that the computation be  
 21 straightforward, this is another manifestation of the  
 22 Treaty being intended to settle disagreements, not  
 23 propagate them. If the parties are perpetually fighting  
 24 over the fine details of a pondage calculation, the  
 25 objective won't be met.

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11:55 1 dispute settlement function. Again, its terms cannot be  
 2 used in such a way as to propagate further disputes, and  
 3 must be capable of being applied, to the extent  
 4 possible, in a clear and consistent manner.  
 5 In this context, it seems unlikely that the correct  
 6 approach would have the capability to descend into  
 7 an unseemly squabble over the correct data. Such  
 8 an approach, in the words of the ICJ in  
 9 Gabcikovo-Nagymaros, would not be reasonable, and it  
 10 wouldn't allow the purpose of the Treaty to be realised.  
 11 Criterion 5: the methodology should be capable of  
 12 resting on data expressly addressed in the Treaty, and  
 13 in particular it should not rely on information that  
 14 India is not required to provide Pakistan in the course  
 15 of notifying Pakistan of a new HEP.  
 16 This is perhaps the most reasonable of all criteria:  
 17 the Treaty must be confined within its four walls. It  
 18 would not be reasonable to expect that the Treaty  
 19 drafters would, sub silentio, have required that the  
 20 calculation of pondage depend on information not  
 21 required under the Treaty to be provided to Pakistan.  
 22 Rather, the contrary is true. The purpose of the  
 23 information-sharing provision in paragraph 9 of  
 24 Annexure D is:  
 25 "To enable Pakistan to satisfy itself that the

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11:56 1 design of a Plant conforms to the criteria mentioned in  
 2 paragraph 8."  
 3 This purpose would be squarely defeated if the  
 4 calculation depended upon information that India was not  
 5 required to provide. We simply wouldn't be able to  
 6 check the numbers.  
 7 Criterion 6: the methodology should not be one that  
 8 one party would be capable of manipulating the result of  
 9 to suit its priorities by unilateral means.  
 10 For Pakistan, this is the most important sufficiency  
 11 criterion, as it maintains the essential balance of the  
 12 Treaty. It cannot be that India can manipulate the  
 13 pondage formula for its own ends without Pakistan being  
 14 able to do anything about it: Sir Daniel's "dark room  
 15 somewhere in Delhi". Such an interpretation, Pakistan  
 16 says, would not be reasonable, and it wouldn't be  
 17 consistent with the object and purpose of the Treaty.  
 18 In the particular context of pondage, moreover, it  
 19 would also be inconsistent with the presumptive ban on  
 20 storage in Article III(4). That wouldn't be much of  
 21 a ban if India could circumvent it at will by means that  
 22 it only has control over; that "it" only has control  
 23 over, if I can put the emphasis in a slightly different  
 24 way.  
 25 This concludes Pakistan's answer on question 19.

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11:59 1 Given the way that things have unfolded in the  
 2 Commission recently, obviously meeting minutes are  
 3 rather sparse. But I can certainly go back and have  
 4 a look at the previous meeting minutes, while meetings  
 5 were still occurring, to see if there's anything sort of  
 6 along those lines.  
 7 THE CHAIRMAN: Anything in the parties' positions before the  
 8 Baglihar Neutral Expert on these kinds of sufficiency  
 9 criteria, as far as you know?  
 10 DR MILES: Pakistan's position at least was similar, in the  
 11 sense that it was saying: the solution cannot be that  
 12 India gets to tell us what the pondage is based on  
 13 levers that only India can pull. So certainly to that  
 14 extent, I would imagine that the Baglihar pleadings  
 15 would have reflections, at least from Pakistan's point  
 16 of view, of the sufficiency criteria.  
 17 As I said, we don't want to imply here that India is  
 18 completely unreasonable in every aspect of its  
 19 behaviour. There may well be statements in the Indian  
 20 pleadings as well that also indicate that they think  
 21 that these are valid yardsticks by which  
 22 Treaty-compliant measures can be determined.  
 23 THE CHAIRMAN: The last question is how far you go with this  
 24 idea of India's approach as being one that opens the  
 25 door to manipulation of pondage for its own ends.

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11:58 1 The short answer is that these criteria, while emerging  
 2 from the text of the Treaty in some respects, are better  
 3 seen as specific articulations of the principle of good  
 4 faith in treaty interpretation. They are abundantly  
 5 sensible: the kind of thing that Pakistan would hope  
 6 a reasonable person, informed of the Treaty's wider  
 7 context, would look at and say, "Well, of course".  
 8 This brings me to question 18, unless there are some  
 9 questions?  
 10 THE CHAIRMAN: I have, I think, two questions for you,  
 11 Dr Miles. (Pause)  
 12 We didn't ask this as a part of the question, but  
 13 I'm interested in your reflections on the basis for the  
 14 sufficiency criteria in other places. My understanding  
 15 is that the travaux don't give us any particular  
 16 insights into these particular sufficiency criteria, at  
 17 least not in a specific or direct sense.  
 18 DR MILES: No.  
 19 THE CHAIRMAN: Is it the case that there is anything to be  
 20 gleaned from the discussions within the Commission that  
 21 point in the direction of these sufficiency criteria?  
 22 Have you had an opportunity to assess that.  
 23 DR MILES: No, I have to confess I haven't, and I'll have to  
 24 take that question on notice. It's an interesting  
 25 question.

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12:00 1 Would you agree that India's approach -- which  
 2 I know that you're going to get to a bit more later --  
 3 is somewhat cabined by what MMD will allow for, such  
 4 that it's not just an open-ended approach?  
 5 DR MILES: Yes. No, I would agree with that entirely,  
 6 Mr Chair. And it's also cabined, India would say, by  
 7 paragraph 15, because that obviously -- I mean, we say  
 8 that's not a criterion of design and you can't use it  
 9 for a criterion of design, but India introduces it to  
 10 the calculation in order to place additional guardrails.  
 11 But at bottom, the source of the calculation is  
 12 installed capacity, and that's the lever that only India  
 13 can pull.  
 14 THE CHAIRMAN: Very good. Thank you. Please proceed.  
 15 DR MILES: (Slide 13) Now, this brings me to question 18,  
 16 concerning the evolution of the parties' positions on  
 17 pondage calculation over time. The Court has asked for  
 18 comment on: (a) the negotiation of the Treaty; (b) the  
 19 Baglihar proceedings; (c) following the Baglihar  
 20 proceedings; and (d) following the Kishenganga  
 21 proceedings, presumably up to the present day.  
 22 I hope to answer this question with reasonable  
 23 dispatch. Each of these elements has been answered by  
 24 individual members of Pakistan's counsel team over the  
 25 course of last week -- I'll try to elaborate on those

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<p>12:02 1 a little bit -- and so my answer will initially proceed 2 by reference to relevant transcript references. 3 I apologise in advance to the transcriber: this bit is 4 going to get terribly boring. 5 (Slide 14) The parties' changes in approach in the 6 negotiation of the Treaty were discussed by 7 Ms Rees-Evans in the context of her presentation on the 8 travaux préparatoires. And in particular, she 9 highlighted the process by which the idea that pondage 10 should be calculated based on plant load diminished over 11 time, becoming converted from a criterion of design to 12 a mere definition, while the concept of "Firm Power" 13 assumed steadily greater prominence, eventually becoming 14 the dominant limit in paragraph 8(c). 15 To the extent that anything can be gotten from the 16 travaux, obviously; the travaux in this case are perhaps 17 not as definitive as in others. 18 That's transcript reference Day 2, page 57, line 20 19 to page 61, line 12. 20 The parties' approach prior to the Baglihar 21 proceedings was discussed by Professor Webb. This is 22 transcript Day 2, page 103, line 17 to page 104, line 6. 23 And there she explained that Pakistan had agreed to 24 India's pondage in six plants prior to Baglihar, but 25 that five of the six -- the exception was Dul Hasti --</p> <p style="text-align: center;">Page 81</p>	<p>12:04 1 Neutral Expert's finding there, with which we're all 2 very well familiar. 3 The post-Baglihar landscape was sketched out by 4 myself and by Sir Daniel. 5 India obviously immediately adopted the Neutral 6 Expert's approach as its own, and I took you through why 7 it was wrong to do so. That's transcript Day 5, 8 page 116, line 18 to page 135, line 13. 9 As for Pakistan, it initially maintained its own 10 approach from Baglihar. But during the pendency of the 11 six-year pause, it had the opportunity to reconsider its 12 position in the cold light of day, and indeed in the 13 light of these proceedings. That's Day 4, page 238, 14 line 17 to page 241, line 20. In that context, it 15 developed the sufficiency criteria, which we've just 16 been through, as expressions of the principle of good 17 faith in Treaty interpretation, and undertook a rigorous 18 and, frankly, soul-searching process to determine what 19 it believes to be the correct approach. 20 The Chairman posed a question to Mr Rae yesterday 21 about Pakistan's approach to pondage in Baglihar. I had 22 intended to cover this in my presentation on Friday, but 23 I'll address it now briefly. Obviously there's a lot of 24 fine detail of engineering calculation in there that 25 I probably shouldn't get into. But I'll give a summary</p> <p style="text-align: center;">Page 83</p>
<p>12:03 1 had extraordinarily small pondage: less than somewhere 2 between 0.1 and 0.9 million cubic metres, so a puddle. 3 For your note, India lists those plants at 4 Appendix 2.6 of its counter-memorial in Baglihar, if you 5 wanted to go and have a look at that in slower time. 6 This perhaps explains, Professor Webb said, 7 Pakistan's willingness to go along with India's 8 position. The live storage of these plants was so small 9 that it wasn't raising a protest in the Commission. 10 There was a bit of horse-trading going on, so: maybe let 11 them have their pondage and they'll change their design 12 in other respects. 13 All that changed with Baglihar, of course, with 14 India's initial design for the HEP contemplating 15 37.722 million cubic metres: a large volume of pondage 16 that compelled Pakistan's protest in the letter of 17 12 August 1992, P-586, that Sir Daniel drew to the 18 Court's attention. 19 At this point, Pakistan insisted that India cleave 20 to the plain words of the Treaty and ensure that it was 21 calculating pondage based on the MMD, and not on the 22 load that it, and it alone, decided to place on the HEP 23 by reference to what was described in that letter as 24 "a very hypothetical load curve". 25 This then led to the Baglihar proceedings and the</p> <p style="text-align: center;">Page 82</p>	<p>12:06 1 as to what the individual steps were, and then I'll tell 2 you why, on Pakistan's view, it doesn't meet the 3 sufficiency criteria. (Pause) 4 (Slide 15) Now, as a matter of Treaty 5 interpretation, Pakistan's earlier approach was based on 6 the following premises. And there's a useful summary of 7 this, from which my remarks are drawn, in paragraphs H.1 8 to H.7 of the Baglihar memorial. 9 Paragraph 2(i) of Annexure D defines "Firm Power" 10 as: 11 "... the hydro-electric power corresponding to the 12 minimum mean discharge at the site of a plant ..." 13 The same paragraph provides the detailed methodology 14 for the calculation of the MMD. So that's 15 proposition 1. Very similar to Pakistan's case today. 16 Paragraph 8(c) of Annexure D maintains that maximum 17 pondage is "twice the Pondage required for Firm Power". 18 Again, Pakistan's case is consistent with that still. 19 And Pakistan's working assumption at this time was 20 that the Treaty entitled India to constant firm power 21 throughout the year, regardless of the hydrological 22 conditions on any given day. Now, this was the part of 23 the analysis that Pakistan's current methodology 24 abandons in favour of an approach that prioritises 25 firm power as a rate of production only that does not</p> <p style="text-align: center;">Page 84</p>

12:07 1 guarantee India a fixed amount of firm power on any  
 2 given day. Pakistan's current approach guarantees India  
 3 a HEP capable of producing firm power on any given day,  
 4 but the duration of that firm power will be determined  
 5 by the hydrology on that day.  
 6 The function of the pondage -- and this is returning  
 7 to bits common between the two approaches -- the  
 8 function of the pondage is therefore to turn a variable  
 9 inflow into a constant outflow. And again, this is  
 10 moving back, as we don't maintain this position anymore.  
 11 Continuous generation of firm power throughout the week  
 12 will require the MMD to be passed through the HEP's  
 13 tours continuously. So constant MMD inflow.  
 14 Thus, the pondage required for firm power in such  
 15 circumstances would be the minimum quantity of storage  
 16 which would allow the continuous production of firm  
 17 power, so long as the average inflow at the site was  
 18 equivalent to the MMD. Once doubled, the argument ran,  
 19 this amount of storage would meet the criterion of  
 20 paragraph 8(c). Completely absent from the enquiry were  
 21 paragraphs 2(c) and 15. Again, that's consistent with  
 22 our current position.  
 23 (Slide 16) Now, the core difficulty, and eventually  
 24 what became the fatal flaw with this methodology, was  
 25 that India could not know in advance what the

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12:10 1 soul-searching, was that this failed several of the  
 2 sufficiency criteria, and failed them obviously.  
 3 First of all -- and I don't know if I made this  
 4 clear -- this does not come up with a fixed and unique  
 5 value of pondage. What it does actually is it produces  
 6 a range of values, some of them extraordinarily low,  
 7 some of them extraordinarily high, and then the value  
 8 with a 10% exceedance rate -- so the value that's going  
 9 to be available 90% of the time -- is selected.  
 10 Now, one might ask, "Why not 9%?", or "Why not  
 11 11%?", or "Why not 5%?", or whatever: that is when the  
 12 problem arises. And that's the issue, right: who gets  
 13 to pick the exceedance? I mean, this is disagreement  
 14 upon disagreement upon disagreement.  
 15 Second, it relies on an unusual process, shall  
 16 I say, in order to work. I think I may have this on the  
 17 next slide (16); I do, in point of fact. It relies on  
 18 some pretty heavy data review in order to work. I say  
 19 "data manipulation" there: that's not quite right. It's  
 20 data review. You've got to dig around in the historical  
 21 record to compute a series of seven-day moving averages,  
 22 and that's just not very satisfactory.  
 23 And third, I said it's very complicated when you  
 24 sort of get down to the nuts and bolts. I'm not sure if  
 25 it could be done with 1960s technology, that is to say,

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12:08 1 hydrological conditions of any week will be. The  
 2 methodology therefore required data review in order to  
 3 operate, and that took place in several processes, which  
 4 I've got set out on the slide -- no, I don't, I beg your  
 5 pardon. That's the previous discussion. But to sort of  
 6 take you through those steps.  
 7 First, the historical daily data for the HEP site  
 8 had to be sifted. So we've no longer got MMD; we've  
 9 actually got to go back to the original data and start  
 10 looking at that. And within that data, you have to find  
 11 a seven-day period in which the average inflow was  
 12 closest to the MMD in the entire hydrological record.  
 13 So we're not just getting into ten-year averages here;  
 14 we're getting into daily data.  
 15 Second, the daily inflows of the sample week were  
 16 then upscaled in order to make their average equal to  
 17 the MMD.  
 18 Third, the pondage "required for Firm Power" within  
 19 the meaning of paragraph 8(c) was then calculated as the  
 20 storage necessary to allow the production of constant  
 21 firm power throughout the week, given those inflows.  
 22 Then finally, the storage was doubled, per  
 23 paragraph 8(c).  
 24 Now, what we discovered when we sort of went through  
 25 the cold-towel-around-the-head process, the

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12:11 1 graphically; but if it could be done, it wouldn't be  
 2 an easy exercise, and again it would likely produce more  
 3 arguments between the parties than any actual solutions.  
 4 So, if anything, the rejection of this approach  
 5 confirms the usefulness of the sufficiency criteria and  
 6 the even-handedness which Pakistan has been applying  
 7 them.  
 8 That ends my answer to question 18 on Baglihar and  
 9 the evolution of the parties' positions.  
 10 THE CHAIRMAN: Mr Minear.  
 11 DR MILES: Yes, Mr Minear.  
 12 MR MINEAR: Just to be clear, was India's position  
 13 consistent from 1960 up until the time of Baglihar? In  
 14 other words, did they use exactly the same methodology  
 15 in each of those plants?  
 16 DR MILES: I believe so. I would have to go back and check,  
 17 but I believe that they were pretty consistent.  
 18 Baglihar being the first plant where Pakistan raised  
 19 an issue that the amount of pondage is incorrectly  
 20 calculated.  
 21 But I've not looked at the Commission minutes.  
 22 I'd have to go back and look at every individual plant  
 23 and see what the equivalent of Appendix VII of P-0546  
 24 was that was provided in relation to that plant.  
 25 MR MINEAR: And in a nutshell, could you describe to

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12:12 1 me/remind me of what the difference was between India's  
 2 position in Baglihar and the different result that the  
 3 Neutral Expert came up with in Baglihar?  
 4 DR MILES: Again, this would require getting into the fine  
 5 details of India's approach.  
 6 What I can tell you is that, broadly speaking, the  
 7 premise of India's approach was accepted by the Baglihar  
 8 Neutral Expert. So he was saying: this is pondage that  
 9 is going to be required to turn a constant inflow into  
 10 a variable outflow. It relied on load, it used  
 11 paragraph 15, and it used a load curve, or the load from  
 12 the plants, in order to define when storage and  
 13 discharge was going to be taking place.  
 14 MR MINEAR: Right. So the difference focused on exactly  
 15 which load curve or what rate or order of release should  
 16 be used for producing power; is that --  
 17 DR MILES: You're quite right. In terms of outcome, you're  
 18 absolutely right, Mr Minear.  
 19 So effectively what happened is that India produced  
 20 a storage and discharge schedule saying, "Here is when  
 21 we want to operate the plant and under what conditions".  
 22 The load curve was sort of provided as evidence of that.  
 23 And I think Professor Buytaert yesterday pointed out  
 24 that it's used to define the peaks and troughs of when  
 25 you're peaking or not peaking, as the case may be,

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12:15 1 Appendix VII of P-0546?  
 2 MR WILLIAMS: Tab 21.  
 3 DR MILES: Tab 21 of your bundles, please, gentlemen.  
 4 THE CHAIRMAN: I think we all have it before us.  
 5 DR MILES: Superb. To that end, question 29 has asked us:  
 6 "Appendix VII of P-0546 sets out India's calculation  
 7 of maximum Pondage at the Kiru HEP, the plant which  
 8 Pakistan used to illustrate its calculation of maximum  
 9 Pondage. The Court invites Pakistan to explain and  
 10 comment on India's calculation, including:  
 11 a. Whether Appendix VII reflects India's current  
 12 methodology;  
 13 b. Pakistan's understanding of India's methodology.  
 14 c. The differences between India's and Pakistan's  
 15 approaches; and  
 16 d. Any other considerations relevant to the  
 17 calculation of maximum Pondage."  
 18 So you now have Appendix VII in front of you for  
 19 Kiru. I can confirm that this document does indeed  
 20 reflect India's current approach. And I can also  
 21 confirm that if the Court was somewhat confused, perhaps  
 22 wondering where the rest of Appendix VII is, that this  
 23 is the entirety of Appendix VII: it's one piece of  
 24 A4 paper. And that signifies a pondage of 10.5 million  
 25 cubic metres, with no calculations behind it -- nothing

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12:13 1 defined on times of peak demand.  
 2 And the Neutral Expert looked at the table and he  
 3 looked at the load curve, and said, "These two don't  
 4 match. You're not peaking when you should be peaking".  
 5 And then he modified the storage and discharge schedule  
 6 in order to line up with the load curve.  
 7 MR MINEAR: And my last question, perhaps you will answer  
 8 this in your next presentation: is India using exactly  
 9 the same discharge schedule that Baglihar used?  
 10 DR MILES: It picks a different discharge schedule for every  
 11 plant. We'll get on to that in a minute, because in my  
 12 submission, the storage and discharge schedule in Kiru  
 13 is a remarkable document.  
 14 MR MINEAR: Please proceed. Thank you.  
 15 DR MILES: (Slide 17) So question 29 is now on the slide.  
 16 And the Court -- at Mr Minear's request, if I'm not  
 17 mistaken -- has asked to see India's pondage calculation  
 18 for the Kiru HEP.  
 19 In the same breath, I recall my exchange with  
 20 Professor Buytaert -- Day 5, page 139, line 14 to  
 21 page 140, line 6 -- regarding the potential need for  
 22 India to provide a load curve under paragraph 3(b) of  
 23 Appendix II of Annexure D requiring India to provide the  
 24 calculations for the operating pool.  
 25 Just so I can check, do you have a copy of

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12:16 1 akin to the calculations done by Professor Lafitte in  
 2 Annexes 6.5.2 to 6.5.7 of the Baglihar decision -- and  
 3 no load curve.  
 4 Indeed, simply by looking at this, one might  
 5 conclude that India is no longer even using the load  
 6 curve for its calculations. It's setting its own load  
 7 on the HEP, without reference to any curve, and telling  
 8 Pakistan potentially that it is entitled to do so.  
 9 But let's go through this document and try and make  
 10 some sense of it.  
 11 At the very top, we see the MMD for the Kiru HEP,  
 12 which India has rounded down from 65.3 to 65 cubic  
 13 metres a second. Then we see our design discharge for  
 14 586 cubic metres a second, which is what the inflow is  
 15 for the Kiru turbines to be driven at their installed  
 16 capacity of 624 MW.  
 17 Below that, we see also that India has made  
 18 provision for a minimum environmental flow of  
 19 16.33 cubic metres per second.  
 20 Below that, we see that India is assuming -- this is  
 21 daily inflow -- that the Chenab will always be flowing  
 22 at the MMD; so that's 24 hours of constant MMD, which is  
 23 hydrologically strange, to say the least. And it's  
 24 using cumec hours as a unit of measurement, which is  
 25 a unit of measurement similar to a megawatt hour. And

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12:17 1 24 of those megawatt hours produces the assumed daily  
 2 inflow, which is 1,560 cumec hours.  
 3 Below that, we see the numbers are then applied to  
 4 the storage schedule imposed on the Kiru HEP by  
 5 paragraph 15. This is India's version of the guardrail.  
 6 And so because it's on the Chenab Main above Ramban,  
 7 this means that paragraph 15(ii) applies, and the  
 8 Kiru HEP can retain no more than 50% of inflow on  
 9 a given day: that's 780 cumec hours. And it can't  
 10 discharge any more than 130%: this is 2,028 cumec hours.  
 11 Finally, we have the nod to the part of  
 12 paragraph 8(c) that India actually likes, which is that  
 13 it gets to double whatever the result of its  
 14 approach is.  
 15 What we then have is the storage and discharge  
 16 schedule that India has used to fix the pondage at the  
 17 Kiru HEP. And it runs from Saturday to Saturday, in  
 18 accordance with the parameters of paragraph 16.  
 19 There's a few things to note here.  
 20 First, and as noted, India is assuming a constant  
 21 inflow at the MMD level for the entire week.  
 22 Second, we can see from the column on the far right  
 23 that it's generating only at the HEP's installed  
 24 capacity. It's not generating firm power, only ever  
 25 secondary power, and that's clear from the column on the

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12:19 1 far right.  
 2 Third, India is actually generating power from the  
 3 schedule for a tiny amount of time. We can see that in  
 4 the "Time" column. So Saturday to Sunday, less than  
 5 an hour: 0.95. Sunday to Monday, an hour. Monday to  
 6 Tuesday, an hour. Tuesday to Wednesday, Wednesday to  
 7 Thursday, Thursday to Friday, Friday to Saturday:  
 8 2.75 hours on each day. It's a tiny, tiny amount of  
 9 time.  
 10 At the bottom, we can see that the Kiru HEP, on this  
 11 storage and discharge schedule, will be generating power  
 12 for just under 14 hours in the week. So for only 8% of  
 13 the entire week is this HEP going to be generating  
 14 power, if India is to be believed.  
 15 Fourth, from this, India has picked the pondage  
 16 required based on the largest amount of cumulative  
 17 storage it needs to satisfy this schedule. And that's  
 18 at 2,808 cumec hours, which is 10.11 million  
 19 cubic metres; which is in the operating pool, I think,  
 20 Tuesday evening, about 17.00 on Tuesday.  
 21 Finally, India tells us that this amount may be  
 22 doubled, and so they end up with a potential operating  
 23 pool of 20.22 million cubic metres. Obviously, and as  
 24 I think either the Chairman or Professor Buytaert  
 25 pointed out, India isn't compelled to select

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12:20 1 an operating pool of this size; it's merely the outer  
 2 limit. And so I think that India has ultimately fixed  
 3 the final size of the operating pool at 10.5 million  
 4 cubic metres.  
 5 Now, I hope from this description that the Court is  
 6 starting to feel a little bit uncomfortable. There's  
 7 something a bit off about this. Specifically, something  
 8 is off about the idea that India thinks it's sensible to  
 9 only generate power for a little under 14 hours a week,  
 10 all of it at the plant's installed capacity, in low-flow  
 11 conditions. (Pause) So it's generating for 14 hours,  
 12 full-blast, in low-flow conditions. You'll recall in  
 13 Baglihar, Professor Lafitte developed a schedule that  
 14 enabled 49 hours of production in exactly the same  
 15 conditions.  
 16 But when we plot this schedule on a graph, we can  
 17 see why this document makes us so uncomfortable.  
 18 (Slide 18) Here's what it looks like. On the  
 19 Y-axis, you'll see plotted the total storage; and then  
 20 on the other Y-axis, the reservoir level. Those two  
 21 obviously track. On the X-axis, you'll see the time  
 22 period, together with miniscule hours of production --  
 23 the little blue "U"s down the bottom in each day -- and  
 24 long, long periods of storage.  
 25 Members of the Court, this is a table that's driven,

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12:22 1 in Pakistan's submission, by one imperative and one  
 2 imperative only, and that's the maximisation of storage.  
 3 What this shows is India storing the maximum amount  
 4 of inflow it can, and then dumping it all through the  
 5 turbines as quickly as possible -- that is to say, at  
 6 the highest possible rate -- in order to meet the  
 7 requirements of paragraph 15(ii), and then immediately  
 8 start storing again. This is shown by the intense  
 9 bursts of power production -- that's the down-spikes  
 10 that you'll see in the graph -- kept as short as  
 11 possible -- a completely uneconomical form of plant  
 12 operation -- followed by long periods of further  
 13 storage.  
 14 And another thing that's quite striking, in my  
 15 submission, is the fact that the HEP stores pondage not  
 16 only over the low-demand weekend, but it's also storing  
 17 through the entirety of Monday and Tuesday morning,  
 18 missing three whole periods of peak demand, where the  
 19 plant could be producing useful energy under a peaking  
 20 plan.  
 21 The Court has asked Pakistan to comment on India's  
 22 current methodology as reflected in this diagram, and  
 23 I suppose it's what I have to do. It's Baglihar off the  
 24 rails.  
 25 (Slide 19) Now, from a Treaty-interpretative

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12:23 1 perspective, as I said in my submissions on Friday,  
 2 Baglihar is bad enough. And the Court has asked us to  
 3 show the differences in terms of approach perspectives.  
 4 Baglihar is bad enough. It's governed by load, not  
 5 hydrology, as paragraph 8(c) requires. Pakistan's  
 6 preferred approach is paragraph 8(c)-compliant.  
 7 It doesn't result in production at the firm power  
 8 rate as calculated under paragraph 2(i), effectively  
 9 reading the concept out of the Treaty. And as we've  
 10 seen now, it's designed for the production of very,  
 11 very, very small amounts of secondary power. Again, the  
 12 production of firm power is the guiding light of  
 13 Pakistan's approach.  
 14 It also assumes constant inflow at the MMD level,  
 15 which is a hydrological impossibility. This also means  
 16 that in reality no pondage, when the river is flowing at  
 17 the MMD level as we've described, is actually required  
 18 for firm power. The river itself provides more than  
 19 enough -- well, it provides exactly enough, rather, for  
 20 firm power in those conditions.  
 21 Pakistan's approach, in contrast, assumes  
 22 a realistic variable inflow, which is then discharged  
 23 through the turbines at the MMD level; which is plainly,  
 24 once more, what the Treaty requires.  
 25 But in Baglihar, Professor Lafitte made at least

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12:25 1 schedule is, and that the maximum storage required to  
 2 operate it is a particular number linked not to firm  
 3 power but the need to produce a minuscule number of  
 4 hours of energy at the plant's installed capacity.  
 5 The result of this is the expropriation, in  
 6 Pakistan's submission, of the waters of the Western  
 7 Rivers, reflecting the occasional instinct of the upper  
 8 riparian that Sir Daniel referred to yesterday.  
 9 That's all I wanted to say about the Kiru HEP  
 10 schedule and India's current approach to the calculation  
 11 of maximum pondage. I obviously made far longer  
 12 submissions on this point towards the end of my  
 13 submissions last Friday, to which these are merely  
 14 additions.  
 15 Now, this discussion has now put me -- unless there  
 16 are questions?  
 17 THE CHAIRMAN: Mr Minear.  
 18 MR MINEAR: Dr Miles, just a point of clarification. The  
 19 minimum environmental flow on this schedule that India  
 20 provides, do you know how that is determined?  
 21 DR MILES: Not the foggiest, I'm afraid. As I've said, this  
 22 is what we get.  
 23 MR MINEAR: And also I had asked previously whether the  
 24 discharge schedule is different for each plant. I think  
 25 you said that it does vary from plant to plant. Is

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12:24 1 an effort to produce a model of plant operation that was  
 2 sensible, even if the entire premise of his model was  
 3 wrong. And we do say the premise of his model was  
 4 wrong. And in the wake of that -- if I can just go back  
 5 to this remarkable diagram (slide 18) -- India seems to  
 6 have taken the sensible bit of that flawed approach and  
 7 removed it. It's gaming Professor Lafitte's methodology  
 8 in order to maximise the pondage that it produces.  
 9 Now, as I said, based on all of this, it's possible  
 10 to conclude that in reality India is no longer using  
 11 a load curve at all. You'll recall -- and I explored  
 12 this, I think it was with Mr Minear -- that in Baglihar,  
 13 Professor Lafitte looked at India's schedule and noted  
 14 that it didn't match the load curve and therefore  
 15 required adjustment. And the upshot of that was that  
 16 the Baglihar HEP's operating pool was reduced from  
 17 37.722 million cubic metres in India's design to the  
 18 final design parameters of 32.56 million cubic metres.  
 19 So because they couldn't keep to the load curve, India  
 20 lost a little bit over 5 million cubic metres of live  
 21 storage.  
 22 And it's entirely possible that the lesson India has  
 23 learned from all this is to simply abandon the load  
 24 curve. The result is the habitual handing-over to  
 25 Pakistan of a piece of paper telling Pakistan what the

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12:27 1 there anything in the record right now that would  
 2 illustrate that for us?  
 3 DR MILES: Well, aside from the fact that this is different  
 4 to the Baglihar schedule, no. But there should be other  
 5 storage and discharges schedules out there that --  
 6 MR MINEAR: That we could request?  
 7 DR MILES: Yes, of course. No, no, no, absolutely.  
 8 MR MINEAR: Okay, thank you.  
 9 DR MILES: Obviously every time we get notified about  
 10 a plant, this is what shows up.  
 11 MR MINEAR: Okay, thank you.  
 12 THE CHAIRMAN: Professor Buytaert.  
 13 PROFESSOR BUYTAERT: Dr Miles, coming back to the graph  
 14 you've got here on slide 18.  
 15 If I recall correctly, one of the things that the  
 16 Neutral Expert did was change the loading, or the moment  
 17 of switching on and off.  
 18 DR MILES: Yes.  
 19 PROFESSOR BUYTAERT: Where originally India's approach did  
 20 not have any outflow apart from the minimum requirements  
 21 during the weekends, Saturday and Sunday, if  
 22 I'm correct, the Neutral Expert spread out the outflow  
 23 more evenly between the weekdays and the weekend, which  
 24 also seems to be reflected here in the calculations of  
 25 Kiru.

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12:28 1 Do you believe that in the Kiru, India has taken  
 2 into account some of those adjustments and essentially  
 3 allowed the corrections of the Neutral Expert in  
 4 Baglihar to inform the calculations for Kiru? Or do you  
 5 believe that they just ignored any corrections the  
 6 Neutral Expert did, and rather implement the same method  
 7 they had been using before?  
 8 DR MILES: I think maybe it's a hybrid of the two  
 9 approaches. I can't tell, is the obvious answer,  
 10 because it's very hard to tell anything from a single  
 11 piece of paper, which is one of the reasons that  
 12 Pakistan is slightly upset about this.  
 13 I would say, taking your question at face value,  
 14 that whatever view you take, this is not a good faith  
 15 implementation of the Baglihar approach. I mean, you  
 16 can't have 14 hours of generation at the installed  
 17 capacity and say that this is a genuine attempt to  
 18 implement Raymond Lafitte's vision. I just don't see  
 19 how that tracks.  
 20 PROFESSOR BUYTAERT: Thank you.  
 21 THE CHAIRMAN: Just to follow up on that.  
 22 I take it your point, in part, in placing before us  
 23 the graph that you have at slide 18 is perhaps that even  
 24 if one were to operate within the approach taken by the  
 25 Baglihar Neutral Expert, it allows for a lot of play in

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12:30 1 paragraph 2(i); and then there's a second definition  
 2 I've got highlighted on the slide, which is the  
 3 definition from the American Society of Civil Engineers.  
 4 The two definitions are very different. The first  
 5 is based on hydrology, and specifically the MMD. The  
 6 second is based on load:  
 7 "... Power intended to have assured availability to  
 8 the customer to meet all or any agreed portion of his  
 9 load requirements."  
 10 The "customer" is of course, in this circumstance,  
 11 India.  
 12 Now, although he does not say so in terms,  
 13 Professor Lafitte appears to have adopted the second for  
 14 the purposes of the Treaty, turning firm power into  
 15 peaking power, and writing large amounts of  
 16 paragraph 2(i) out of the Treaty.  
 17 And as we've seen from the Kiru HEP calculations,  
 18 India has done exactly the same. The sole power that is  
 19 produced by the HEP is secondary power. It's more than  
 20 that: it's secondary power right up to the limits of the  
 21 installed capacity of 624 MW.  
 22 India, if pressed, would therefore appear likely to  
 23 claim that pondage "required for Firm Power" in  
 24 paragraph 8(c) means required for peaking power of the  
 25 kind that I've just demonstrated. Again, it's

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12:29 1 the joints that India would take advantage of, that  
 2 would then result in friction between the two parties  
 3 repeatedly in the Commission; and consequently,  
 4 Pakistan's preferred approach to the pondage  
 5 calculation, which is far more definitive in nature,  
 6 helps avoid those types of conflicts?  
 7 DR MILES: That's precisely correct, yes.  
 8 THE CHAIRMAN: Very good. Please proceed.  
 9 DR MILES: (Slide 20) Okay. On to question 24. That's now  
 10 on the slide.  
 11 "What is the difference between the Parties as to  
 12 the language of 'required for Firm Power'? ... Is there  
 13 also a potential difference as to the meaning of  
 14 'corresponding' to in the definition of Firm Power?"  
 15 Now, having adopted the determination of  
 16 Professor Lafitte in Baglihar as its own, India does  
 17 not, says Pakistan, acknowledge the plain wording of  
 18 paragraph 2(i), which provides that "Firm Power" is the  
 19 power produced by the HEP when the river flows at the  
 20 MMD level.  
 21 (Slide 21) Now, in Baglihar, Professor Lafitte was  
 22 not entirely clear, at least on my reading, as to what  
 23 he thought the words "required for Firm Power" meant.  
 24 At paragraph 5.9.3 (PLA-2), he referred to two  
 25 definitions as you know: the definition in

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12:32 1 regrettable that they're not here to make this point for  
 2 themselves. But as I say, it seems to follow from what  
 3 they have told Pakistan in the Kiru HEP calculations  
 4 that that's their understanding.  
 5 I also note that India is far from clear on this  
 6 point in the Commission minutes. Most of the time, and  
 7 certainly post-Baglihar, its Commissioners don't refer  
 8 to paragraph 8(c) at all. They tend, rather, to refer  
 9 to paragraphs 2(c) and 15; or, more often still, just to  
 10 Baglihar itself, which has become something of  
 11 a talisman for the various Indian Commissioners since  
 12 that decision was handed down.  
 13 Pakistan's view, as you know, is that "required for  
 14 Firm Power" means required for firm power: it is the  
 15 pondage required to assist the river in reaching the MMD  
 16 rate so that the plant can produce firm power.  
 17 Now, there may also be a difference in the meaning  
 18 of the term "corresponding to" in paragraph 2(i).  
 19 Again, India isn't terribly fond of paragraph 2(i): it  
 20 doesn't seem to refer to it overtly in the Commission.  
 21 But as we've seen from the Kiru HEP calculations, its  
 22 theory is premised on a constant, 24/7 inflow at the MMD  
 23 rate. So it would see "corresponding to" as being the  
 24 energy corresponding to that which a HEP can produce  
 25 through peaking when the river flows continuously at the

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12:33 1 MMD rate. Again, that's consistent with what we've seen  
 2 from the Kiru calculations.  
 3 The difficulty with this approach, as we have  
 4 explored multiple times over this hearing, is that the  
 5 Treaty doesn't make a provision for energy production --  
 6 which is what India is effectively doing: they're  
 7 saying, "We're guaranteed 14 hours of installed capacity  
 8 generation per week"; that's energy -- it makes  
 9 a provision for power production.  
 10 And that realisation is at the heart of Pakistan's  
 11 interpretation. "Firm Power" within the meaning of  
 12 paragraph 2(i) is the power corresponding to that which  
 13 the HEP can produce when the river is flowing at  
 14 a particular rate, and that's the minimum mean  
 15 discharge.  
 16 So that's the differences between the two parties on  
 17 those two crucial terms.  
 18 THE CHAIRMAN: No questions for you on that, Dr Miles.  
 19 Please proceed.  
 20 DR MILES: (Slide 22) This brings me to my final question,  
 21 which is of course question 30. It's on the slide. And  
 22 it presents two alternative approaches for the  
 23 calculation of pondage put forward by two of the Court's  
 24 members, the Chairman and Mr Minear, and it has invited  
 25 Pakistan to comment on them.

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12:35 1 firm power, and not more than that; in other words, not  
 2 secondary power.  
 3 And that's exactly what Pakistan's approach has set  
 4 out to do: to ensure that in any sub-MMD conditions, the  
 5 operating pool will have sufficient storage to allow the  
 6 entire reservoir inflow, on a given day, to be used to  
 7 produce firm power by being passed through the turbines  
 8 at the MMD rate. Pakistan's approach will therefore  
 9 give the plant the storage "required for" this operation  
 10 in all hydrological circumstances: from 0% of the MMD --  
 11 never going to happen -- to 100% of the MMD, perhaps  
 12 more likely to happen. And that storage, when doubled,  
 13 fixes the size of the operating pool.  
 14 And that's the issue that Pakistan has with both of  
 15 these alternative theories. While both alternatives  
 16 recognise, correctly, that the right approach must be  
 17 derived from the MMD, they reflect essentially arbitrary  
 18 volumes of water. It's difficult to see how either of  
 19 them will provide the storage that is required for firm  
 20 power on any particular day.  
 21 Now, this is particularly the case for the first  
 22 alternative. On a 24-hour cycle, the only time that  
 23 a plant would need an entire day's worth of MMD flow to  
 24 produce firm power would be if there was no flow in the  
 25 river at all. That's a highly unlikely hydrological

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12:34 1 The questions are as follows. The first proposal:  
 2 "... multiplying the minimum mean discharge by  
 3 a 24-hour duration factor, doubled, producing a maximum  
 4 Pondage of 11.283 [million cubic metres] for the Kiru  
 5 HEP ..."  
 6 And then the alternative:  
 7 "... multiplying the minimum mean discharge, less  
 8 the lowest historic minimum discharge, by a 24-hour  
 9 duration period, doubled, producing a maximum Pondage of  
 10 4.959 [million cubic metres] for the Kiru HEP ..."  
 11 Now, as is apparent from their wording, these two  
 12 approaches draw from the same conceptual wellspring.  
 13 And both of them produce a simple and straightforward  
 14 mechanism for the calculation of pondage, so no risk  
 15 about breaching the sufficiency criteria here.  
 16 (Slide 23) But in Pakistan's submission, neither of  
 17 them is consistent with the language of the Treaty, and  
 18 the reason why is on the slide. It's paragraph 8(c),  
 19 and I've highlighted the words "required for".  
 20 Pakistan has always seen these words as important.  
 21 They've been deliberately chosen by the Treaty drafter,  
 22 and must be given meaning. Together with  
 23 paragraph 2(i), they reflect the fact that  
 24 paragraph 8(c) contemplates that pondage will provide  
 25 the additional flow "required for" a plant to achieve

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12:37 1 circumstance.  
 2 This was the point that I tried to make --  
 3 unartfully, I'm sure -- when it was first raised with  
 4 me, this alternative, on Friday. That's transcript  
 5 Day 5, page 100, lines 2-6. Now, in response to that,  
 6 the Chairman noted, quite rightly, that if that's what  
 7 the Treaty says, then that's what the Treaty says.  
 8 We're engaged here in an act of legal interpretation.  
 9 But as I hope I've demonstrated, paragraph 8(c)  
 10 doesn't say that. The premise of the pondage is that  
 11 it's "required for Firm Power", implying a working plant  
 12 attempting to achieve the firm power rate in particular  
 13 hydrological circumstances. It is this image that has  
 14 been Pakistan's guiding light as it has developed its  
 15 approach, and it is borne out in the language of  
 16 paragraph 8(c). It's not reflected in the first  
 17 alternative.  
 18 Now, if the Court were to force me to choose between  
 19 these alternatives, I would pick the second one, and the  
 20 reason why is that it's more congruent with the language  
 21 of the Treaty.  
 22 What it appears to do is scan the hydrological  
 23 record that produced the MMD, the ten-day averages, and  
 24 identify the lowest entry. In essence, it recognises  
 25 that this level of daily cubic metres per second flow is

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12:38 1 likely guaranteed to be available no manner what. We  
 2 could call it the "guaranteed minimum discharge", or  
 3 "GMD".  
 4 The approach then subtracts the GMD from the MMD,  
 5 and provides for 24 hours of the resulting flow rate as  
 6 storage. Essentially, what this means is that when this  
 7 storage is added to 24 hours of the GMD, India gets  
 8 24 hours of MMD, and therefore firm power.  
 9 One can see how this would indeed be "Pondage  
 10 required for Firm Power", albeit in very specific and  
 11 historically unlikely circumstances. In all other  
 12 circumstances, so below that GMD level, it would enable  
 13 production of secondary power. Nevertheless, it can be  
 14 better made to fit the language of the Treaty, and is  
 15 therefore to be preferred over the alternative, which  
 16 remains, in the grand scheme of things, an arbitrary  
 17 number.  
 18 And that concludes my answer on question 30.  
 19 THE CHAIRMAN: Mr Minear.  
 20 MR MINEAR: Thank you, Dr Miles. This goes to a more  
 21 general question concerning India's approach. And  
 22 obviously India is not here to inform us, but you can be  
 23 assured that we are doing our best to understand their  
 24 position. I don't think it's fair to ask you to try and  
 25 explain it any further for us. But I do have this

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12:39 1 question.  
 2 India is operating these run-of-river plants as part  
 3 of a contribution to a very large grid, I think the  
 4 "Northern India grid", it's described as, and I assume  
 5 that consists of plants that are both Treaty and  
 6 non-Treaty-based. Is that right?  
 7 DR MILES: That's correct, yes. I think they still have  
 8 a number of the grandfathered plants mentioned in  
 9 paragraph 4 to Annexure D, for example.  
 10 MR MINEAR: Your position puts severe constraints, in my  
 11 view, on pondage, as you're entitled to request under  
 12 your view of the theory. But my understanding is: even  
 13 if those plants are restricted, sufficient other Indian  
 14 plants would be available to provide that peaking, even  
 15 if the Treaty-based plants are constrained. Maybe I'm  
 16 not making myself --  
 17 DR MILES: That's quite right, Mr Minear. I mean, we're  
 18 dealing with the whole northern Indian region here.  
 19 I mean, there's going to be a whole blend of different  
 20 plants in there. There's going to be nuclear; massive  
 21 amounts of solar is coming online in India; there's  
 22 going to be coal-fired plants, gas-fired plants. It's  
 23 all part of an integrated grid in which hydro is  
 24 a relatively small portion.  
 25 I don't know what the other river basins that are

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12:41 1 feeding the northern region of India may be. But if  
 2 there are multiple such basins, then obviously the  
 3 Treaty won't apply to them. And even within the Indus  
 4 Basin, of course, India can do whatever it likes on the  
 5 Eastern Rivers. It's just these Western Rivers plants  
 6 that are constrained in terms of pondage.  
 7 Also, by the way -- I think I said this in my  
 8 remarks last Friday -- just because you've got a small  
 9 amount of live storage in your plant doesn't mean that  
 10 it's useless. I mean, these things are going to be  
 11 running full-blast in the wet season, providing healthy  
 12 amounts of baseload power into the northern region. You  
 13 only need pondage during the depths of winter, when the  
 14 flow rate really starts getting down there.  
 15 And so it's not even a case that there are other  
 16 plants that are able to take up the load on India's  
 17 behalf in the northern region; it's that even these  
 18 plants are only going to have reduced capacity for  
 19 a small portion of the year. I can't put it any higher  
 20 than that.  
 21 MR MINEAR: Again, trying for me to understand India's  
 22 concerns here, I take it from this discussion that it  
 23 might be that India doesn't need to be concerned about  
 24 meeting its peaking requirements; rather, its concerns  
 25 are the most economical or efficient operation of these

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12:42 1 Treaty-based plants?  
 2 DR MILES: Exactly, and that's a completely justifiable  
 3 perspective on India's behalf. But it entered into  
 4 a treaty in the terms that it did. "Pondage required  
 5 for Firm Power" means pondage required for firm power.  
 6 As I think Sir Daniel said, I mean, this is not  
 7 a one-sided bargain. They got the entirety of the  
 8 Eastern Rivers in this deal; and in exchange, they got  
 9 restricted rights to build hydroelectric plants on the  
 10 Western Rivers. And one of the restrictions that they  
 11 agreed to was limited pondage: specifically, "Pondage  
 12 required for Firm Power" only.  
 13 MR MINEAR: Thank you.  
 14 THE CHAIRMAN: So, Dr Miles, I'm wondering what you think of  
 15 the following proposition, which is that the different  
 16 possibilities that perhaps are in front of us in terms  
 17 of the way one might understand paragraph 2(i) and  
 18 paragraph 8(c) are that, on one end of the spectrum, one  
 19 might view this as driven almost entirely by MMD: that  
 20 when we look at 2(i), it arguably takes you into an MMD  
 21 concept to try to figure out the pondage issue, and  
 22 located on that side of the spectrum might be the two  
 23 approaches that are at issue in question 30.  
 24 More towards the middle of the spectrum would be  
 25 the idea that MMD is a driving element of the way that

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12:43 1 this should be interpreted, but, as you pointed out,  
 2 2(i) does refer to "Firm Power"; 8(c) does refer to  
 3 "Pondage required for Firm Power". You didn't say this,  
 4 but I suppose one might also look at 2(c): the idea that  
 5 pondage is supposed to have something to do with the  
 6 meeting of fluctuations that the plant is trying to  
 7 achieve. And that because of all of that, one shouldn't  
 8 simply lean on MMD; one should lean on MMD in  
 9 relationship to the way that a plant normally would  
 10 operate. I think you said all of this implies a working  
 11 plant and what is needed to make it work.  
 12 And then at the other end of the spectrum would be  
 13 leaning heavily on the concept of firm power in the way  
 14 that it's normally perhaps understood, as driven  
 15 considerably by a plant's operation and a load curve and  
 16 things of that sort. And India is residing on that end  
 17 of the spectrum when it attempts to interpret 2(i) and  
 18 8(c).  
 19 I think you've articulated why we should perhaps be  
 20 in the middle, and I'm just wondering if that's the way  
 21 you're seeing things as well.  
 22 DR MILES: I think I would say that we would articulate  
 23 Pakistan's approach as being -- yes, in the middle in  
 24 the sense that there is a form of reservoir operation  
 25 that is being carried out. But you've got to be able to

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12:46 1 15 minutes. Does Professor Webb wish to begin now? The  
 2 alternative would be to break for lunch and come back  
 3 15 minutes early from lunch.  
 4 SIR DANIEL: Thank you, Mr Chairman. Having consulted with  
 5 Professor Webb for precisely this eventuality, I think  
 6 she would prefer to have a clear run. And if we could  
 7 break now and come back 15 minutes early.  
 8 THE CHAIRMAN: Okay. Well, that's fine then. So we will  
 9 plan to come back at essentially 1.45 in order to pick  
 10 up with Professor Webb.  
 11 SIR DANIEL: Thank you, Mr Chairman.  
 12 THE CHAIRMAN: Thanks.  
 13 (12.47 pm)  
 14 (Adjourned until 1.45 pm)  
 15 (1.45 pm)  
 16 THE CHAIRMAN: Welcome back, everyone. I hope that you had  
 17 a good lunch.  
 18 So I see that Professor Webb is at the podium and  
 19 she's going to be speaking to us about outlets,  
 20 spillways and power intakes. So whenever you're ready,  
 21 please proceed.  
 22 Submissions on outlets, spillways and intakes  
 23 PROFESSOR WEBB: (Slide 1) Thank you, Mr Chairman, members  
 24 of the Court. I will be addressing you on  
 25 questions 4(b), 4(c), 5, 14, 15, and 16(b) and (c).

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12:45 1 dispose of the entire daily inflow into the reservoir at  
 2 the firm power rate, and you need capacity to do that.  
 3 But it's important to avoid confusion here: that  
 4 that still remains, MMD, as the driving element of the  
 5 calculation, as I think you said. There's a reservoir  
 6 operation in there. But completely absent from the  
 7 calculation are considerations of load, levers that  
 8 India is capable of pulling by itself.  
 9 So I think I would agree with that spectrum you've  
 10 set out, emphasising that Pakistan is currently sitting  
 11 somewhere in the middle of it, premised on reservoir  
 12 operations but not on load, not on installed capacity,  
 13 and nothing that India is able to unilaterally modify.  
 14 THE CHAIRMAN: Very good. I think we have no questions for  
 15 you on that.  
 16 DR MILES: In that case, members of the Court, it remains  
 17 for me to thank you for your kind attention.  
 18 THE CHAIRMAN: Very good. Well, thank you, Dr Miles, for  
 19 your presentation. It covered a lot of ground and was  
 20 of considerable assistance to us.  
 21 DR MILES: Pleasure.  
 22 THE CHAIRMAN: So, Sir Daniel, I think we are, perhaps  
 23 surprisingly, a little bit -- well, perhaps not ahead of  
 24 schedule, but I thought maybe we would be going up to  
 25 the lunch break with Dr Miles. We do have a good

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13:46 1 (Slide 2) So starting with question 4(b). The Court  
 2 has asked about the relationship between "the concept of  
 3 necessity in paragraphs 8(d) and 8(e), and the choice of  
 4 site for a HEP". And they've asked:  
 5 "If an outlet below Dead Storage Level or a gated  
 6 spillway is necessary at one site, but not another, is  
 7 India obligated to choose the site not requiring such  
 8 elements?"  
 9 So we have here the test of necessity for key design  
 10 features, and the prohibition of drawdown flushing,  
 11 which applies throughout the Western Rivers, as the  
 12 Kishenganga Court confirmed in its decision on  
 13 clarification or interpretation (PLA-21) at  
 14 paragraph 33. And both of these factors, the necessity  
 15 gateway and the prohibition on drawdown flushing, inform  
 16 and constraint site selection.  
 17 (Slide 3) So the range of options can be seen in  
 18 this table.  
 19 If India chooses a site and design intended for  
 20 drawdown flushing, that is prohibited under the Treaty.  
 21 If the site and design would enable drawdown  
 22 flushing, then it is not immediately prohibited, but the  
 23 choice of that site is heavily constrained. The burden  
 24 is on India to show that it has a plan for sediment  
 25 management that does not involve drawdown flushing. And

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13:47 1 as the Kishenganga Court said in its partial award  
 2 (PLA-3) at paragraph 506:  
 3 "... the Treaty does not simply restrict the Parties  
 4 from taking certain actions, but also constrains their  
 5 entitlement to construct works that would enable such  
 6 actions to be taken."  
 7 Then we relate this to the design and placement of  
 8 outlets and gated spillways. So we see that for  
 9 an outlet to be below dead storage level, India has to  
 10 show that this is necessary for sediment control or  
 11 another technical purpose, excluding a sediment control  
 12 plan or a purpose that would be achieved through the  
 13 depletion below the dead storage.  
 14 And similarly for the gated spillway, in order to  
 15 have a gated instead of ungated spillway, India has to  
 16 show this is necessary due to the conditions at site,  
 17 and that would exclude any compulsion towards the  
 18 depletion of dead storage.  
 19 And when we are assessing this necessity criterion  
 20 in 8(d) and 8(e), we have to recall that this has to be  
 21 a genuine necessity, and not a manufactured or  
 22 artificial necessity compelled by a poor site choice.  
 23 So if the outlet is below dead storage level or the  
 24 gated spillway is necessary for reasons other than  
 25 drawdown flushing, then India is not obliged to choose

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13:51 1 that is a feature of such a design. And I spoke to you  
 2 last week about how placing intakes very deep into the  
 3 reservoir then perpetuates this vertical stacking and  
 4 these increments of submergence, because you need an  
 5 even deeper outlet to clear sediment from the area of  
 6 the intake. That's transcript Day 4, page 173. This  
 7 was also consistent with Pakistan's argument in the  
 8 Kishenganga proceedings, as recorded at the partial  
 9 award (PLA-3) at paragraph 330.  
 10 However, there is, as you see it in the lighter pink  
 11 area, an area where there is no overlap between these  
 12 relationships. And that is when you have certain  
 13 scenarios where an outlet below dead storage level or  
 14 a gated spillway is necessary for reasons other than  
 15 drawdown flushing. And in these scenarios, then the  
 16 necessity analysis is detached from the prohibition on  
 17 drawdown flushing as established and confirmed by the  
 18 Kishenganga Court.  
 19 (Slide 6) I will just recall how the Kishenganga  
 20 Court analysed its approach to site selection and the  
 21 prohibition on drawdown flushing. And you can see the  
 22 rigour of this analysis.  
 23 At paragraph 517 (PLA-3), the Court observed that  
 24 "the prohibition on reservoir depletion [under the  
 25 Treaty] will preclude India from having recourse to

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13:49 1 another site. But in order to reach this point, it has  
 2 to discharge its burden under paragraphs 8(d) and 8(e)  
 3 in order to comply with the Treaty.  
 4 As we pointed out on Thursday -- and that's  
 5 transcript Day 4, pages 117-119 -- there is no  
 6 preordained site in these circumstances, and there is no  
 7 perfect site. There will always be a choice.  
 8 (Slide 4) Question 4(c) asks how this relationship  
 9 compares to "the relationship between site selection and  
 10 the prohibition on drawdown flushing found by the  
 11 Kishenganga Court".  
 12 (Slide 5) That can be shown with this Venn diagram.  
 13 The relationship between necessity and outlets below  
 14 dead storage level and having a gated instead of  
 15 an ungated spillway substantially overlaps, but not  
 16 perfectly, with the relationship between site selection  
 17 and the prohibition on drawdown flushing.  
 18 The overlap exists -- and that's the darker red  
 19 colour, which is the prohibited area -- the overlap  
 20 exists because outlets below dead storage level and  
 21 gated spillways are features of the typical Indian HEP  
 22 design that is intended to be used for drawdown  
 23 flushing.  
 24 You've heard from Dr Morris this morning about the  
 25 vertical stacking features going deep into the reservoir

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13:52 1 flushing with drawdown below Dead Storage Level", noting  
 2 that "[drawdown] flushing is but one of a number of  
 3 techniques available for sediment control".  
 4 In footnote 724, the Court noted that India's  
 5 argument on necessity had not been consistent. India  
 6 had argued that drawdown flushing was "one of the  
 7 effective techniques" for maintaining the sustainability  
 8 of reservoirs, but also, at another point, argued it was  
 9 "necessary" for the sustainability of the Kishenganga  
 10 plant.  
 11 At paragraph 519 of the partial award, the Court  
 12 considered that the testimony of India's expert showed  
 13 "that drawdown flushing [was] an appropriate (and  
 14 perhaps preferable) technique, but not the only possible  
 15 one", and that he had failed to "examine[] whether  
 16 sluicing would suffice to control sediment at  
 17 [Kishenganga]".  
 18 At paragraph 520, similarly, the report of another  
 19 Indian expert stating that drawdown flushing was  
 20 "essential for the sustained operation of the [plant]"  
 21 was doubted by the Court, in that it did not "exclude  
 22 other possible designs that could operate on a different  
 23 basis" for sediment management.  
 24 And the Court concluded -- and this is clear in its  
 25 clarification decision (PLA-21) at paragraph 34 -- that

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13:54 1 in this situation, the options for India are to modify  
 2 its design, even if it's not the most economical  
 3 approach, or to choose another site.  
 4 I'm now moving to question 5, on best practices,  
 5 unless there are any questions so far on these points.  
 6 THE CHAIRMAN: I don't think we have questions. So please  
 7 proceed.  
 8 PROFESSOR WEBB: Thank you.  
 9 (Slide 7) So question 5 asks about "the different  
 10 ways the concept of best practices is referenced in the  
 11 Treaty" and "the support for the proposition that doing  
 12 so refers to international best practices".  
 13 I recall Sir Daniel's observations in response to  
 14 the Chairman's question at transcript Day 5, page 262,  
 15 line 5 to page 264, line 11. He said that best  
 16 practices cannot be by reference to Indian standards, or  
 17 even Indian and Pakistani standards, because this is  
 18 an international treaty of a special character.  
 19 (Slide 8) Support for this proposition is found  
 20 using the well-established principles of treaty  
 21 interpretation. The ordinary meaning of terms in the  
 22 Treaty that we have referred to throughout are not  
 23 limited to a locality or even to a region: so "sound and  
 24 economical", "satisfactory operation", "customary and  
 25 accepted ... design" -- which was not associated with

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13:57 1 we have heard from Ms Rees-Evans, it was negotiated with  
 2 international practices very much in mind, including the  
 3 role of Raymond Wheeler, Chief of Engineers of the  
 4 US Army before his appointment to the World Bank.  
 5 Also in 1960, at the time of conclusion, India did  
 6 not have developed standards, given the pretty limited  
 7 dam construction at the time. And both states, India  
 8 and Pakistan, were relying on international advisors and  
 9 international firms for dam design and construction.  
 10 And the Bureau of Indian Standards' publication -- which  
 11 we have referred to, for example, at P-0583 -- was first  
 12 published on hydropower intakes in 1981, more than  
 13 two decades after the Treaty was concluded.  
 14 I'm now turning to the next question, which is  
 15 question 14, which revolves around notions of cost and  
 16 economical design. But before that, Mr Chairman ...  
 17 THE CHAIRMAN: Let me just check to see if there are  
 18 questions.  
 19 I have one on this issue of international best  
 20 practices or more local best practices. You've been  
 21 quite clear about the relevance of the Treaty text about  
 22 the selection of the arbitrators, the choice of law  
 23 provision and the types of standards that were available  
 24 as of 1960. So that was all very clear.  
 25 In the course of the negotiating history, which

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13:55 1 a particular region -- and methods of achieving the  
 2 "highest level" or the "minimum size". So as we've said  
 3 throughout, this requires using best practices in the  
 4 service of the Treaty.  
 5 Context is also helpful here. When "customary and  
 6 accepted ... design" is used elsewhere in Treaty, such  
 7 as paragraph 10(a) of Annexure D, it is associated with  
 8 the effective date of 1 April 1960. In paragraph 8, it  
 9 is not so tied to that date, meaning that it can and  
 10 must include developments since 1960.  
 11 Article IX on dispute settlement, and paragraph 4 of  
 12 Annexure G, envisage a court of "highly qualified  
 13 engineers" and "persons well versed in international  
 14 law". And the selection process also points to this  
 15 focus on international practices. It is a process  
 16 involving the heads of international organisations, the  
 17 leaders of academic institutions, the head of the  
 18 judiciary in England and Wales, and the highest-ranking  
 19 officer in the US Federal Judiciary.  
 20 Paragraph 29 of Annexure G provides that, "whenever  
 21 necessary", the Court may apply "International  
 22 conventions" and "Customary international law". There  
 23 is no reference to local or regional standards.  
 24 We come then to a supplementary means of  
 25 interpretation: the circumstances of conclusion. And as

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13:58 1 I know was not your original presentation, but do you  
 2 recall there being references, in the course of the  
 3 back-and-forth between the two parties, about the use of  
 4 standards, perhaps references to particular materials  
 5 such as the Creager treatise? Does that exist in the  
 6 negotiating history?  
 7 PROFESSOR WEBB: I will be checking this with my colleague  
 8 Ms Rees-Evans. From my review of the travaux, it is not  
 9 there, or it's not at all prominent. What you do see  
 10 though is Raymond Wheeler's role; you see the early  
 11 reference to the Lilienthal plan based on seven states  
 12 in the United States.  
 13 But on the other hand, I'm not sure about whether  
 14 we've got express reference, although certainly the  
 15 engineers involved in those negotiations would have been  
 16 very familiar with those handbooks.  
 17 THE CHAIRMAN: Thank you.  
 18 And a similar question relating to the practice of  
 19 the parties after 1960. This may come out more as the  
 20 record is developed of the exchanges between the  
 21 Commissioners, for example, in the Permanent Indus  
 22 Commission.  
 23 PROFESSOR WEBB: Yes.  
 24 THE CHAIRMAN: Is it the case, in that context, that both  
 25 sides are referring to international practices in the

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14:00 1 course of their dialogue?  
 2 PROFESSOR WEBB: So I have certainly seen reference on both  
 3 sides to purported state of the art, which Pakistan  
 4 would submit in some circumstances -- although India was  
 5 drawing on international practice -- was not actually  
 6 state of the art, or not applicable given the  
 7 prohibition on drawdown flushing.  
 8 Then you've got the counter-arguments from  
 9 Pakistan's Commissioner in the Commission saying: this  
 10 is not actually the practice that's applied in this  
 11 topography with this kind of run-of-river dam.  
 12 That's another thing that, as you say, we can keep  
 13 an eye on as we do our first sift through the material  
 14 that's coming in for 30 September.  
 15 THE CHAIRMAN: And then a final question, and this is  
 16 mimicking, to an extent, the question I put to Dr Miles.  
 17 Is it the case that in the pleadings before the  
 18 Baglihar Neutral Expert and the Kishenganga Court of  
 19 Arbitration, you have both parties habitually referring  
 20 to international standards of practice?  
 21 PROFESSOR WEBB: You do. It's in different ways. And you  
 22 have the Neutral Expert also himself, I think, at  
 23 one point, referring to a survey of 14,000 dams.  
 24 But what I would caution with the way that material  
 25 is used is not that it's international practice in the

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14:03 1 meaning as "cost".  
 2 "Economical" means: is "characterized by or tending  
 3 to economy; careful [utilization] of resources, not  
 4 wasteful"; not being disproportionately expensive given  
 5 the purpose for which it has been designed. So it is  
 6 about the use of resources in relation to other  
 7 considerations. It is a contextual term, in the way  
 8 that perhaps "cost" is less often used in a contextual  
 9 way.  
 10 The second observation is that in paragraphs 8(d)  
 11 and (e) of Annexure D, the consideration of economical  
 12 design or construction only comes into play after India  
 13 has discharged its burden of showing necessity, whether  
 14 that's the necessity of a gated spillway or outlets  
 15 below dead storage level. And "economical" is viewed in  
 16 tandem with other relevant factors, and I just return to  
 17 the three flowcharts that I presented on  
 18 paragraphs 8(d), (e) and (f).  
 19 (Slide 10) So you see under 8(d), the first step is  
 20 to show that a low-level outlet is necessary for  
 21 sediment management or other technical purpose. Once  
 22 you have gone through that gateway and proven that it is  
 23 necessary, then it is about identifying the options,  
 24 which are tested and screened against this concept of  
 25 "sound and economical design". Then the idea of the

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14:01 1 service of the Treaty. It has to be very carefully  
 2 assessed, because sometimes it's got nothing to do with  
 3 run-of-river situations, as opposed to other types of  
 4 dam. And sometimes it's used, particularly by India, as  
 5 an excuse to ignore Treaty constraints.  
 6 But certainly in Baglihar, you see reference to  
 7 comparative and international practice.  
 8 THE CHAIRMAN: Yes, I could see it's two different points:  
 9 when should one use these practices; but then, if one  
 10 does refer to these practices, what is the nature of  
 11 them?  
 12 PROFESSOR WEBB: Exactly.  
 13 THE CHAIRMAN: It sounds as though, from what you say, it is  
 14 international practices that are being discussed?  
 15 PROFESSOR WEBB: Yes.  
 16 THE CHAIRMAN: Thank you. That's fine. Please proceed.  
 17 PROFESSOR WEBB: Thank you.  
 18 (Slide 9) So question 14 asks about the extent to  
 19 which "cost is a relevant consideration with respect to  
 20 outlets, spillways and intakes ... given the references  
 21 to 'economical design' ... and 'economical  
 22 construction'". And I start with two observations.  
 23 First, as Dr Morris has explained this morning, and  
 24 as I explained at transcript Day 4, page 124, line 25 to  
 25 page 125, line 4, "economical" does not have the same

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14:04 1 smallest and highest outlet comes into play, to narrow  
 2 down the options to a particular design. And that needs  
 3 to fit in with the "satisfactory operation of the  
 4 works": it has to, obviously, perform its desired  
 5 function in an acceptable manner.  
 6 (Slide 11) In 8(e), the initial requirement is  
 7 showing that a gated spillway is necessary, and that is  
 8 linked to the conditions at the site of the proposed  
 9 plant. "Sound and economical" once again comes in at  
 10 the second step, once you're identifying your options,  
 11 having met the threshold of showing that a gated  
 12 spillway is necessary. Then the design options are  
 13 narrowed down according to the highest position of the  
 14 bottom level of the gates when they're closed. And this  
 15 time "satisfactory construction and operation" come in  
 16 as the final stage.  
 17 (Slide 12) For intakes, we don't have an initial  
 18 necessity test under 8(f), so the first test will be  
 19 looking at whether these are satisfactory and economical  
 20 designs; then the highest level intake in the reservoir  
 21 among those designs; and taking into account customary  
 22 and accepted practice for the designated range of that  
 23 plant's operation, bearing in mind it is a run-of-river  
 24 plant.  
 25 So in this process, whether something is

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14:06 1 an "economical design" or an "economical construction"  
 2 is not an overriding consideration. It is always  
 3 associated with being "sound" or "satisfactory". It is  
 4 often associated with something being at the "highest  
 5 level", a structure being at the "highest level". For  
 6 intakes, it's associated with the operation of a plant  
 7 as a run-of-river plant. And of course, "economical",  
 8 as a term, is always subject to the object and purpose  
 9 of the Treaty, including the hydro bargain.  
 10 So I recall what I said on Thursday, which is: if  
 11 there is a choice in design, and one outlet would be  
 12 higher and smaller but more expensive to build, then  
 13 India is obliged to choose that design.  
 14 (Slide 13) We can look at how this was treated, this  
 15 notion of economical and design choices, in the  
 16 Kishenganga proceedings. So in the expert's report by  
 17 Dr Schleiss appended to India's rejoinder, the expert  
 18 said that:  
 19 "Under the local topographic conditions of the KHEP  
 20 it is technically not feasible to design free surface  
 21 desilting basins or desanders. The only but not  
 22 economical solution would be to place them underground  
 23 as a pressurized desilting chamber."  
 24 So he has rejected the underground desander option  
 25 as being not economical. And he has concluded that

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14:09 1 consistent with the principle of effectiveness in the  
 2 law of treaties?"  
 3 We would say that it is compatible with the  
 4 principle of effectiveness and that principle is  
 5 respected because the interpretative approach that  
 6 we are putting forward for 8(d), (e) and (f) does not  
 7 render the reference to "economical" superfluous or  
 8 devoid of any effect, which would be the intention with  
 9 the principle of effectiveness. It includes the notion  
 10 of "economical" as part of a step-by-step analysis that  
 11 takes a number of factors and principles into account.  
 12 The other part of the Court's question was the  
 13 distinction to be drawn between "economical design"  
 14 in 8(d) and "economical construction" in 8(f). And  
 15 Pakistan submits that there is a distinction between  
 16 them.  
 17 (Slide 15) "Economical design" refers to designs  
 18 that fulfil Treaty requirements. It's to be read in the  
 19 light of the chapeau of paragraph 8, which says:  
 20 "... the design of any new Run-of-River Plant ...  
 21 shall conform to the following criteria: ..."  
 22 It concerns how the feature will operate to fulfil  
 23 its purpose, including considerations of sediment  
 24 control, sustainability and maintenance.  
 25 As Dr Morris said this morning, it is not that the

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14:08 1 a minimum reservoir size is essential to guarantee the  
 2 settling of the sediments, essentially turning the  
 3 reservoir into a desander.  
 4 (Slide 14) Now the Court directly addressed this  
 5 point in its partial award (PLA-3) at footnote 734.  
 6 They said:  
 7 "For the Court, this ..."  
 8 The report of the expert:  
 9 "... suffices to establish that the current design  
 10 of the KHEP may well be the simplest alternative and the  
 11 use of drawdown flushing the most economical approach to  
 12 sediment management; it does not establish that these  
 13 approaches are the only ones available."  
 14 And even if it had been the only option available to  
 15 India -- which the Kishenganga Court doubted, because  
 16 sluicing with little drawdown would have been  
 17 particularly effective in the region, as they note at  
 18 paragraph 521 -- then the solution is not to permit  
 19 designs that are intended for drawdown flushing but, as  
 20 the Court said at paragraph 34 of its decision on  
 21 clarification (PLA-21), it would be for India to secure  
 22 a more appropriate location and draw more appropriate  
 23 designs.  
 24 So the second part of the question of the Court is:  
 25 "... if [the cost] is not relevant, how is that

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14:10 1 least-cost design will be chosen, either under the  
 2 Treaty or how India actually has been designing its  
 3 plants in practice. "Economical" does not equate to  
 4 "least cost".  
 5 "Economical construction" is limited to  
 6 paragraph 8(f) on power intakes. It concerns the  
 7 practicalities of building the intake. It requires that  
 8 the height of the intake be "consistent with  
 9 satisfactory and economical construction and operation".  
 10 And the drafters of paragraph 8(f) favoured a surface  
 11 intake with a part slightly below dead storage level,  
 12 which is better able to manage sediment while also being  
 13 cheaper to construct, and therefore would meet that  
 14 economical criterion.  
 15 So stepping back, the reference to "economical" in  
 16 the various provisions of paragraph 8 is not a basis or  
 17 a justification for incorporating a cheaper alternative  
 18 that would contravene the Treaty.  
 19 As a practical matter, and as you've heard from  
 20 Dr Morris, it is also not entirely clear that India's  
 21 designs would be more economical, with their deep,  
 22 high-pressure, low-level outlets, which are more costly  
 23 in general than a crest-gated spillway.  
 24 And there's also not just the cost of construction  
 25 and design and complexity but the ongoing maintenance of

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14:12 1 these plants which comes into the design. Deep  
 2 low-level outlets are more likely to be clogged with  
 3 debris; and spillways located on the crest are much  
 4 easier to maintain and clear of large debris, like logs  
 5 that may have come from an upstream landslide or flood.  
 6 (Slide 16) I will now move to question 15, which is  
 7 on outlets in general. The Court asks:  
 8 "What is the universe of outlets regulated by ...  
 9 8(d) of Annexure D?"  
 10 And we say the universe of outlets is: all outlets  
 11 below dead storage level. Outlets can be classified  
 12 according to their function. At Exhibit P-0304, we have  
 13 the US Army Corps of Engineers Hydraulic Design of  
 14 Reservoir Outlets Works Engineer Manual from  
 15 15 October 1980, which this graphic is based on, and it  
 16 lists various functions for outlets.  
 17 (Slide 17) Not all of these would be relevant to  
 18 an Annexure D hydroelectric plant, but you asked about  
 19 the universe of outlets. So they would include: flood  
 20 control, navigation, irrigation, water supply,  
 21 hydropower of course, E-flows or low flow, diversion,  
 22 and drawdown for inspection or maintenance.  
 23 Some of these functions of course may be combined in  
 24 a single structure. And as I said last week, Pakistan  
 25 has no objection to dual-function outlets as long as

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14:16 1 not be higher than 20 feet above the mean bed of the  
 2 Tributary at the site of the structure."  
 3 The third reason is: as Dr Morris and I noted last  
 4 Thursday, at transcript Day 4, page 51, lines 11-14 and  
 5 page 175, lines 20-24, the invert of a power intake is  
 6 always at least partially below dead storage level, in  
 7 order to divert water into the intake and have the full  
 8 range of the operating pool. And for this reason,  
 9 paragraph 8(f) of Annexure D will always address intakes  
 10 that are at least partially below dead storage level.  
 11 So those were our reasons for taking that  
 12 interpretation of paragraph 8(d) as meaning wholly  
 13 below.  
 14 However, reflecting upon the Court's questions, and  
 15 consistent with Pakistan's emphasis that paragraph 8(d)  
 16 is, as Sir Daniel said, "the gateway to all kinds of  
 17 outlets that appear in a hydropower plant" -- transcript  
 18 Day 4, page 14, lines 3-5 and page 101, lines 18-19 --  
 19 Pakistan is willing to accept that paragraph 8(d) can  
 20 include outlets located partially above and partially  
 21 below dead storage level. Such an outlet would have to  
 22 satisfy both the criteria in paragraph 8(d); and then,  
 23 if it was a spillway, 8(e); and if it was a power  
 24 intake, 8(f) as well.  
 25 THE CHAIRMAN: Thank you, Professor Webb.

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14:14 1 they are in the service of the Treaty.  
 2 (Slide 18) The next part of question 15 asks if  
 3 paragraph 8(d) is "limited to outlets located entirely  
 4 below Dead Storage Level", or it may "include outlets  
 5 located partially above and partially below Dead Storage  
 6 Level". And:  
 7 "To the extent that [we] maintain[] that this  
 8 provision applies only to outlets located entirely below  
 9 ... what is the basis for [that] interpretation?"  
 10 In Pakistan's Memorial at paragraphs 10.80 and  
 11 10.101, and in these proceedings at transcript Day 4,  
 12 page 142, lines 16-20, we have stated that  
 13 paragraph 8(d) applies to outlets entirely below dead  
 14 storage level. And this has been for three reasons.  
 15 The first is that we are simply interpreting the  
 16 ordinary meaning of "outlets below Dead Storage Level"  
 17 as meaning outlets wholly below dead storage level.  
 18 The second reason is that in terms of context, when  
 19 the Treaty addresses structures at a certain height,  
 20 it does tend to specify it. So in paragraph 8(e), it  
 21 refers to the bottom level of the gates in the normal  
 22 closed position. In paragraph 18(c) of Annexure D,  
 23 which relates to small plants, it refers to:  
 24 "... the crest of the diversion structure across the  
 25 Tributary, or the top level of the gates, if any, shall

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14:17 1 So you've left me a little bit puzzled. There is  
 2 presumably the best interpretation of the Treaty. And  
 3 the question is: is the Treaty best interpreted as  
 4 regarding outlets that are partially below dead storage  
 5 level as falling within the scope of paragraph 8(d) or  
 6 not?  
 7 And I wasn't entirely clear. Are you saying that  
 8 Pakistan has a position, which is that they must fall  
 9 entirely below dead storage level --  
 10 PROFESSOR WEBB: Yes.  
 11 THE CHAIRMAN: -- but that you can see a possible  
 12 interpretation that says a partial outlet below dead  
 13 storage level also is included in paragraph (d)?  
 14 PROFESSOR WEBB: Yes, that's exactly what we're saying,  
 15 Mr Chairman.  
 16 The challenge here is with paragraph 8(f) on power  
 17 intakes, because a power intake will always have its  
 18 invert slightly below the dead storage level, or deeper.  
 19 So when we were interpreting the Treaty, we were  
 20 thinking: how does 8(d) relate to 8(f)? With spillways,  
 21 there can be a surface spillway, free-overflow spillway:  
 22 then it would be entirely regulated by 8(e). And if it  
 23 is below dead storage level, it would be regulated by  
 24 8(d). But it was with the power intakes that we were  
 25 considering what function that would still play in 8(f),

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14:19 1 if you always put it within 8(d).  
 2 THE CHAIRMAN: Okay.  
 3 PROFESSOR WEBB: (Slide 19) Perhaps I'll expand on that in  
 4 the answer to the last part of the Court's question,  
 5 which is:  
 6 "Would any difference of significance follow from  
 7 ... applying ... 8(d) to outlets partially below Dead  
 8 Storage Level?"  
 9 We say that by applying 8(d) to outlets partially  
 10 above or partially below dead storage level, it would  
 11 make the criteria for such outlets more stringent.  
 12 (Slide 20) 8(d), as you can see, introduces  
 13 a necessity test that does not appear in 8(f), for  
 14 example. So 8(d) requires showing that that placement  
 15 of the outlet would be "necessary for sediment control  
 16 or another technical purpose".  
 17 The test in 8(e) for a gated spillway is related to  
 18 "the conditions at the site", which may or may not  
 19 overlap with "sediment control [and] other technical  
 20 purpose".  
 21 Importantly, 8(d) introduces the requirement of  
 22 "minimum size", which is a factor that is not mentioned  
 23 in the other paragraphs. 8(d) requires the location "at  
 24 the highest level". 8(e) also requires that, as does  
 25 8(f), but with slightly different criteria for each of

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14:22 1 flows -- by being below dead storage level, it can help  
 2 guarantee such flows at any time; as Dr Morris  
 3 explained, an outlet below dead storage level may be  
 4 used as a sediment sluice in front of or otherwise  
 5 situated in the immediate vicinity of the intake to  
 6 produce a localised scour cone or otherwise pull  
 7 sediment away from the intake, to minimise accumulation  
 8 and entrainment into the intake; as Professor Buytaert  
 9 pointed out this morning, it can also be used to vent  
 10 a turbidity current without reservoir drawdown; and it  
 11 may also be designed to allow dewatering of the dam.  
 12 So we've expanded, in the light of your question, on  
 13 what we would consider an "other technical purpose".  
 14 (Slide 22) Question 16(c) asks about "purposes that  
 15 would call for an outlet below Dead Storage Level that  
 16 is not located at a low level near the reservoir  
 17 bottom". And there are indeed purposes that would call  
 18 for an outlet that is below dead storage level but not  
 19 sitting on the river bottom, and I'll just give two  
 20 examples.  
 21 So as you've heard from Dr Morris, a high-capacity  
 22 outlet with the crest elevation below dead storage level  
 23 is used for sediment sluicing. It would be advantageous  
 24 for that outlet to be relatively shallow. Its crest  
 25 would be set lower than the intake, but it would not be

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14:20 1 them.  
 2 And finally, 8(d) does not include the criteria of  
 3 "satisfactory and economical construction" or "customary  
 4 and accepted practice", which only appears in 8(f). So  
 5 therefore it doesn't apply a construction lens to the  
 6 design of the outlet that may affect its placement if  
 7 you were purely under 8(f).  
 8 (Slide 21) I now turn to question 16(b), 16(a)  
 9 having been answered by Dr Morris this morning. And  
 10 this asks about:  
 11 "What would Pakistan understand as constituting  
 12 a potential 'other technical purpose' for having  
 13 an outlet below Dead Storage Level?"  
 14 As Sir Daniel said on Thursday, at transcript Day 4,  
 15 page 13, line 23 to line 2 on page 14, the principal  
 16 focus of 8(d) is sediment management. That's the first  
 17 and specific criterion that is specified. The phrase  
 18 "other technical purpose" is a catch-all term.  
 19 I indicated last week, at transcript Day 4, page 119  
 20 lines 12-14, that it would include contributing to the  
 21 passing of the design flood.  
 22 In the light of the Court's question, we've given  
 23 even more thought to this, and other possibilities for  
 24 the phrase "other technical purpose" include: having  
 25 an outlet below dead storage level to pass ecological

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14:24 1 located on the bottom of the reservoir.  
 2 As we pointed out in transcript Day 4, page 130,  
 3 lines 12-17, ICOLD guidelines, in Exhibit P-0530,  
 4 actually recommend that a five-year flood would be  
 5 passing, rather than higher floods produced at higher  
 6 levels. So when part of the outlet below the dead  
 7 storage level should be designed for the five- or  
 8 ten-year flood and is mainly about sediment management.  
 9 The second example is an intake, whether it's  
 10 a power intake or an environmental flow intake, that is  
 11 helpfully located below dead storage level, because  
 12 otherwise the water cannot flow into the intake when the  
 13 reservoir is at its minimum operating level. However,  
 14 you wouldn't want such an intake at the riverbed because  
 15 you would have the problem of taking in a lot of  
 16 sediment.  
 17 Mr Chairman, members of the Court, those are the  
 18 questions that I wished to address you on. I'm happy to  
 19 answer any questions; otherwise that concludes my  
 20 submissions.  
 21 THE CHAIRMAN: Thank you very much, Professor Webb. Let me  
 22 just turn to my colleagues and see if they have any  
 23 questions.  
 24 (2.25 pm)  
 25 Questions from THE COURT

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14:25 1 THE CHAIRMAN: I just have one question for you.  
 2 We've occasionally raised the issue of Annexure E in  
 3 the course of the hearing.  
 4 PROFESSOR WEBB: Yes.  
 5 THE CHAIRMAN: And as I think you perhaps have even noted,  
 6 we do have comparable provisions relating to outlets and  
 7 spillways and intakes in Annexure E.  
 8 So it's just a general question: have you looked at  
 9 that language as perhaps relevant context for  
 10 interpreting the provisions that you've been addressing  
 11 in this presentation?  
 12 On first glance, they look to be very similar, and  
 13 therefore there's perhaps nothing much to be taken from  
 14 it. But if I understand correctly, in an Annexure E  
 15 storage work, it might be the case that your intake is  
 16 at a lower level because of the nature of it, and  
 17 therefore it seems to me maybe some relevance could be  
 18 divined from that context, with that language, as to  
 19 what might be meant in Annexure D.  
 20 So it's just a general question for you to reflect  
 21 upon, now or in due course.  
 22 PROFESSOR WEBB: Yes.  
 23 So the similar language is relevant to an extent.  
 24 I did refer to it in the context of the hydro bargain:  
 25 that we keep seeing this relationship between a rule and

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14:27 1 an exception, developing that balance between the  
 2 parties, reflecting the peace and the Treaty bargains  
 3 underlying the Indus Waters Treaty. But it only goes so  
 4 far.  
 5 And I know Sir Daniel will be developing this in his  
 6 closing submissions, and we will certainly be coming  
 7 back to it in any post-hearing submission, if that would  
 8 be helpful to the Court. Because there are key  
 9 differences between storage works and run-of-river  
 10 plants, both historically and in the way that they  
 11 function from an engineering point of view, even when  
 12 there is a power storage capacity associated with  
 13 a storage work.  
 14 So I think we can only go so far. You've already  
 15 given the example that there may be a tendency towards  
 16 multiple outlets, including very low outlets, in  
 17 a storage work that can't be transposed to  
 18 a run-of-river design.  
 19 THE CHAIRMAN: Very good. Thank you.  
 20 I think that's all the questions we have.  
 21 PROFESSOR WEBB: Thank you.  
 22 THE CHAIRMAN: So thank you very much for your presentation.  
 23 It was very helpful.  
 24 PROFESSOR WEBB: Thank you very much.  
 25 THE CHAIRMAN: So if I understand it correctly, we have

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14:28 1 Mr Fietta next, to raise with us some points about the  
 2 paragraph 35(a) issues. Is that correct?  
 3 SIR DANIEL: That's correct. Thank you.  
 4 THE CHAIRMAN: Very good. In which case I invite Mr Fietta  
 5 to the podium; and once you are assembled there, feel  
 6 free to proceed. (Pause)  
 7 MR FIETTA: Okay, thank you.  
 8 (2.28 pm)  
 9 Submissions re Question 35(a) Issues  
 10 MR FIETTA: (Slide 1) Good afternoon, Mr Chairman and  
 11 members of the Court. My task today is to address you  
 12 on one residual but important element of Pakistan's  
 13 answer to the Court's question at paragraph 35(a) of  
 14 your PO No. 6, dated 6 July 2023, namely about the  
 15 extent of the binding or otherwise controlling effect of  
 16 decisions of Courts of Arbitration under Article IX of  
 17 the Treaty, with a focus on the Kishenganga awards.  
 18 I explained on Day 3 of the hearing that there is  
 19 in fact apparently little or no disagreement between the  
 20 parties as to the limited res judicata effect of  
 21 determinations of a Neutral Expert. Specifically, India  
 22 has never argued, as I explained on Day 3, that the  
 23 Baglihar determination has any legally binding or  
 24 otherwise controlling effect beyond the specific aspects  
 25 of the Baglihar HEP that were the subject of that

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14:30 1 determination.  
 2 But as you picked up on Day 3, Mr Chairman, India's  
 3 position with respect to the binding or otherwise  
 4 controlling effect of the Kishenganga Court of  
 5 Arbitration awards has been, to use your words, "less  
 6 clear"; that's Day 3, page 131. Both in the PIC and the  
 7 Commission and other contexts, India has been  
 8 circumspect, if not evasive, as to the res judicata  
 9 consequences of those awards.  
 10 So in order to assist your decision-making with  
 11 respect to your first question in PO No. 6, whether in  
 12 an expedited partial award or an award covering all of  
 13 your questions, I will explain to you why the systemic  
 14 res judicata effect of Kishenganga derives not just from  
 15 its dispositifs but also from certain of the paragraphs  
 16 setting out the Court's underlying reasoning which  
 17 informed those dispositive findings.  
 18 (Slide 2) So we can pick up the discussion on Day 3  
 19 between pages 143 and 146. There, Mr Chairman, you  
 20 raised the question of what constitutes the award, with  
 21 reference to the wording at paragraph 23 of Annexure G,  
 22 which provides, as you will recall, that:  
 23 "The Award shall be accompanied by a statement of  
 24 reasons."  
 25 You asked whether, in effect, this wording means

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14:31 1 that the award is limited to its dispositif, such that  
 2 the statement of its reasons is separate, and thus  
 3 potentially not final, binding or otherwise controlling  
 4 in the same way as a dispositif.  
 5 After some discussion on Day 3, you correctly  
 6 summarised Pakistan's position to be that:  
 7 "[res judicata extends to] not just the dispositif", but  
 8 also to, you said, "aspects of the reasoning underlying  
 9 what is determined in the dispositif". And you added:  
 10 "There may be other aspects of the award that are  
 11 not directly germane to the outcome that might not have  
 12 res judicata effect."  
 13 And that is the crux of Pakistan's position: namely  
 14 that there is nothing in paragraph 23 of Annexure G of  
 15 the Treaty to disapply the basic position at  
 16 international law that the res judicata of a binding  
 17 adjudicative decision extends to the paragraphs setting  
 18 out the rationale which underpins the dispositive  
 19 findings.  
 20 So in the remaining 20 minutes or so of my remarks,  
 21 I'm going to split my presentation into three parts.  
 22 First, I will briefly revisit what are the main  
 23 dispositive findings of the Kishenganga awards.  
 24 Second, I will explain, with reference to  
 25 long-standing international jurisprudence, why the

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14:34 1 against reduction below dead storage level, save in  
 2 cases of unforeseen emergency; and the fact that  
 3 accumulation of sediment in the reservoir of a plant on  
 4 the Western Rivers did not constitute an unforeseen  
 5 emergency that would permit depletion of reservoir below  
 6 dead storage level for drawdown flushing purposes.  
 7 They were clearly, on their face, systemic findings.  
 8 But as I will explain, that fact is confirmed in the  
 9 reasoning of the Court which forms part of the  
 10 res judicata underlying those paragraphs.  
 11 As I mentioned last week, India has never  
 12 acknowledged that the Kishenganga award dispositifs even  
 13 have any systemic or otherwise controlling effect on the  
 14 interpretation of the Treaty. So it's therefore  
 15 important that in your forthcoming paragraph 35(a)  
 16 decision, you confirm the extent of the res judicata  
 17 which emanates from the various Kishenganga Court  
 18 dispositifs, such as those on the screen here.  
 19 But it will be no less important that your decision  
 20 confirm also the res judicata elements of the underlying  
 21 reasoning of the Kishenganga Court's dispositive  
 22 findings. And you can do this, we say, with reference  
 23 to extensive and long-standing international  
 24 jurisprudence and commentary to this effect.  
 25 (Slide 6) On Day 3 of the hearing and in our

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14:32 1 awards' binding or otherwise controlling effect extends  
 2 to the critical elements of their underlying reasoning;  
 3 a point which we touched on briefly in the Memorial, but  
 4 on which we thought we could usefully elaborate in this  
 5 closing.  
 6 And third, I will apply that jurisprudence to the  
 7 Kishenganga awards, in order to identify at least some  
 8 of the central paragraphs of that Court's reasoning,  
 9 which plainly, in our submission, form part of the  
 10 res judicata of those awards.  
 11 First then, let us look at some of the dispositive  
 12 paragraphs of the Kishenganga awards and distinguish  
 13 between those that were specific to the KHEP plant and  
 14 those that were of more systemic or general application.  
 15 And for this purpose, I have focused on the partial  
 16 award, together with the Court's subsequent decision on  
 17 India's request for clarification or interpretation.  
 18 So if we look at the partial award (PLA-3), we can  
 19 see, on my next slides (3-5) a distinction between, in  
 20 blue, the KHEP-specific, the Kishenganga plant-specific  
 21 aspects of the partial award dispositif, so  
 22 paragraphs A(1) and A(3) there, for example; and then  
 23 aspects of the dispositif which were more systemic or  
 24 generic in nature in red: for example, paragraphs B(1)  
 25 and B(2) of the dispositif, concerning the prohibition

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14:36 1 Memorial, we restricted our submission on this point to  
 2 the International Court of Justice's fairly recent  
 3 preliminary objections judgment in Colombia v Nicaragua;  
 4 that's PLA-108. But I'm going to expand that submission  
 5 with reference to other similar jurisprudence. That  
 6 jurisprudence confirms that the underlying reasoning  
 7 contained in Court of Arbitration decisions, including  
 8 the Kishenganga awards, has res judicata effect as  
 9 a matter of international law.  
 10 I'm going to look at four additional examples from  
 11 the jurisprudence; there are others. We'll start with  
 12 two state-to-state arbitrations, and we will move on  
 13 then to look at an award of the Iran-US Claims Tribunal,  
 14 and finish with the award of an ICSID World Bank  
 15 tribunal chaired by Professor Alain Pellet, all of which  
 16 confirm this core element of the res judicata doctrine  
 17 at international law.  
 18 (Slide 7) The first case I'm going to look at for  
 19 this purpose is the UK-France Continental Shelf  
 20 Delimitation case relating to delimitation of a maritime  
 21 boundary between the UK and France. In that case, there  
 22 was a post-award application by the United Kingdom  
 23 concerning the meaning and scope of the court of  
 24 arbitration's decision.  
 25 The UK contended in its application that:

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14:38 1 "... certain clearly identified passages in the  
 2 [Court of Arbitration] Decision itself constitute  
 3 essential elements of the Award which equally have the  
 4 authority of res judicata and, indeed, form an integral  
 5 part of the Court's response to the question specified."  
 6 And the UK, for that purpose, cited previous cases  
 7 dating back to the Chorzów Factory case of the early  
 8 20th century -- Permanent Court of International  
 9 Justice, of course -- which it said had confirmed the  
 10 significance of both the dispositif and its underlying  
 11 reasoning whenever determining what is the res judicata  
 12 element of an international judgment or award.  
 13 Now, France did not reject these propositions of  
 14 law. And they were picked up by the court of  
 15 arbitration in its 1978 decision on the UK's  
 16 application, as shown on these slides here.  
 17 (Slide 8) So at paragraph 28 of its decision, the  
 18 court held that:  
 19 "... if findings in the reasoning constitute  
 20 a condition essential to the decision given in the  
 21 dispositif, these findings are to be considered as  
 22 included among the points settled with binding force in  
 23 the decision ..."  
 24 And there you see the reference to Chorzów Factory.  
 25 Then later on in its decision, on the next slide

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14:41 1 decision of the court of arbitration having binding  
 2 effect.  
 3 THE CHAIRMAN: Okay.  
 4 MR FIETTA: And the question was: okay, what is the  
 5 "decision" for that purpose: was it only the dispositif  
 6 or was it also the underlying reasoning?  
 7 THE CHAIRMAN: Very good. Thank you.  
 8 MR FIETTA: The court held the latter.  
 9 In 1994 -- we can go to our next slide (9) and our  
 10 next case. This is the Laguna del Desierto case  
 11 (PLA-67, paragraph 70). This again confirmed -- a case  
 12 between Argentina and Chile relating to a land boundary  
 13 delimitation -- it confirmed, with reference to the  
 14 UK-France decision that we've just looked at and other  
 15 previous jurisprudence again, that the "logically  
 16 necessary antecedents" of the operative parts of  
 17 international judgments form part of their res judicata.  
 18 (Slide 10) Then to similar effect we have Case  
 19 No. B61 at the Iran-US Claims Tribunal. And the words  
 20 here actually, the later words in the extract here,  
 21 echo, I think, the summary of you, Mr Chairman, on  
 22 Day 3. Here the tribunal held that:  
 23 "In addition to the operative part (dispositif) of  
 24 a decision, the reasons (motifs) provided in the  
 25 decision also have res judicata effect to the extent

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14:39 1 (9), the court said at paragraph 70 -- I'm sorry,  
 2 I think we've gone ahead one slide. If we go back  
 3 (slide 7).  
 4 Yes, so we hadn't looked at this, at paragraph 25  
 5 actually, just beforehand. The court said:  
 6 "... it by no means follows that the 'decision'  
 7 referred to in those Articles ..."  
 8 I.e. the articles of the arbitration agreement:  
 9 "... is to be considered as denoting a disembodied  
 10 dispositif and chart wholly detached from the reasoning  
 11 leading up to and justifying the provisions of the  
 12 dispositif ..."  
 13 So in other words, it would have been artificial to  
 14 separate the dispositif of the court's award from the  
 15 underlying reasons for purposes of identifying the  
 16 res judicata effect of that award.  
 17 THE CHAIRMAN: Mr Fietta, could you just clarify the  
 18 bracketed text there, "of the Arbitration Agreement"?  
 19 Are you saying that there is a dispositif in the  
 20 arbitration agreement?  
 21 MR FIETTA: No. The arbitration agreement referred to the  
 22 decision having binding effect.  
 23 THE CHAIRMAN: So the arbitration agreement is what we're  
 24 using to call the "decision"?  
 25 MR FIETTA: No. The arbitration agreement referred to the

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14:42 1 that those reasons are relevant to the actual decision  
 2 on the question at issue."  
 3 And then a quotation from the Genocide case, where  
 4 the court had said that:  
 5 "... it may be necessary to distinguish between,  
 6 first, the issues which have been decided with the force  
 7 of res judicata, or which are necessarily entailed in  
 8 the decision of those issues; secondly, any peripheral  
 9 or subsidiary matters, or obiter dicta; and [thirdly,  
 10 any final] matters which have not been ruled upon  
 11 at all ..."  
 12 And that trilogy of categories of findings in  
 13 international judgments and awards was echoed in your  
 14 summary on Day 3.  
 15 (Slide 11) Then finally, to similar effect we have  
 16 the decision of the World Bank ICSID tribunal in RREEF  
 17 v Kingdom of Spain, which made a general remark relating  
 18 to res judicata. And it confirmed, that tribunal, in  
 19 its 2018 decision on responsibility (RLA-106,  
 20 paragraph 209), that paragraphs in the main body of its  
 21 earlier decision on jurisdiction had formed part of the  
 22 res judicata of that decision, even though they had not  
 23 appeared in the operative part of that earlier decision  
 24 on jurisdiction, and therefore they would not be  
 25 reopened.

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14:44 1 That's quite common, I think, in the context of  
 2 merits phases, where a party may try to reopen issues  
 3 decided in the reasoning of a decision on jurisdiction.  
 4 Importantly for the purposes of this jurisprudence,  
 5 it is immaterial whether the reasoning formally forms  
 6 part of an award or not. What is important is that the  
 7 reasoning underpinning a decision can -- and indeed  
 8 must -- be used in order to elucidate the meaning and  
 9 scope of the dispositive part of that decision.  
 10 Consequently, it forms part of the res judicata.  
 11 Annexure G, paragraph 23 supports this by positively  
 12 requiring any award to be accompanied by a statement of  
 13 reasons.  
 14 Moreover, it's notable that both in the Kishenganga  
 15 awards and in your own Award on Competence, the  
 16 reasoning underpinning the dispositive paragraphs formed  
 17 part of the text of the awards themselves. Thus,  
 18 neither Court has understood paragraph 23 of Annexure G  
 19 as requiring production of any separate or detached  
 20 statement of reasons that might somehow have less legal  
 21 consequence or weight than the reasoning of any other  
 22 international judgment or award.  
 23 Nothing in paragraph 23 indicates that this was the  
 24 intention of the parties when drafting the Treaty. On  
 25 the contrary, paragraph 23 serves to confirm the mutual

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14:47 1 (Slide 13) The ILA committee proceeded to issue  
 2 a series of recommendations relating to res judicata  
 3 which were intended for the benefit of international  
 4 arbitrators faced with res judicata issues. Those  
 5 recommendations are based in part upon a review of the  
 6 public international law jurisprudence, as is seen in  
 7 the report. And they are informative in confirming the  
 8 extent of a persuasive understanding in international  
 9 adjudication that the conclusive and preclusive effects  
 10 of arbitral awards extend beyond their formal  
 11 dispositive parts, into "all reasoning necessary  
 12 thereto", in the words of the recommendation there, and  
 13 into:  
 14 "... issues of fact or law which have actually been  
 15 arbitrated and determined ... provided any such  
 16 determination was essential or fundamental to the  
 17 dispositive part ..."  
 18 So, Mr Chairman, members of the Court, returning  
 19 then to your question at paragraph 35(a) of PO No. 6,  
 20 and your comment at page 146 of Day 3 that then the core  
 21 issue becomes, in light of that: to what extent is the  
 22 reasoning of a Court of Arbitration under the Treaty  
 23 binding or otherwise controlling?  
 24 In its Memorial at paragraph 8.6.9, Pakistan stated  
 25 that the res judicata of a Court of Arbitration decision

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14:45 1 intention that any dispositive findings should be  
 2 underpinned by reasoning. This serves both to reinforce  
 3 the juridical weight of the dispositive paragraphs and  
 4 to confirm their material scope and effect.  
 5 (Slide 12) Now, between 2005 and 2009, the  
 6 International Law Association undertook a study into  
 7 res judicata and international arbitration. This was by  
 8 its Committee on International Commercial Arbitration.  
 9 And in its final report in 2009, the committee endorsed  
 10 what it called an "extensive notion of res judicata",  
 11 and it commented that it was "also followed in public  
 12 international law", which the committee had looked at,  
 13 including some of the jurisprudence we've been through  
 14 today. And the committee said that under that extensive  
 15 notion of res judicata:  
 16 "... res judicata not only is to be read from the  
 17 dispositive part of an award, but also from its  
 18 underlying reasoning."  
 19 And it continued by observing that "More restrictive  
 20 notions of the scope of res judicata, limiting  
 21 conclusive and progressive effects to the dispositive  
 22 parts of awards" had not been followed in the  
 23 committee's final recommendations, because the committee  
 24 considered that they would be "overly formalistic and  
 25 literal".

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14:49 1 extends both to the operative part -- that is the  
 2 dispositive, of course -- and to the "reasoning informing  
 3 that operative part". That was the formulation we used,  
 4 the "reasoning informing that operative part".  
 5 Now, we've seen in the jurisprudence today, in the  
 6 ILA report, various similar formulations in the  
 7 jurisprudence and commentary. In light of this  
 8 jurisprudence and commentary, in particular the  
 9 jurisprudence, the ILA committee was plainly correct,  
 10 we say, in concluding that the res judicata doctrine of  
 11 public international law "is to be read from the  
 12 dispositive part of an award but also from its  
 13 underlying reasoning".  
 14 In our submission, this answers your question about  
 15 the extent to which the reasoning of a former Court of  
 16 Arbitration decision, such as the partial and final  
 17 awards in Kishenganga, are binding or otherwise  
 18 controlling with respect to future disputes or  
 19 differences.  
 20 And notably, in fact this Court -- on my next slide  
 21 (14) -- this Court adopted such an approach in its Award  
 22 on Competence last year, when it rejected India's  
 23 argument that differences between the parties must be  
 24 directed to a Neutral Expert under Article IX of the  
 25 Treaty unless the parties mutually agree otherwise.

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<p>14:50 1 In rejecting that argument, the Court made reference 2 to res judicata paragraphs contained in the main body, 3 but not the dispositif, of the Kishenganga partial 4 award, namely paragraphs 476 to 479. You noted that 5 India had advanced the same argument, and the Court had 6 rejected that argument, and the interpretation of 7 Article IX in the Kishenganga award was final and 8 binding on India. 9 So I now come to the third and final part of my 10 presentation, and this considers: to what extent do the 11 supporting paragraphs of the Kishenganga awards form 12 part of their res judicata, and specifically which 13 paragraphs? 14 Now, Pakistan does not purport to identify every 15 single paragraph of the Kishenganga partial and final 16 awards which has res judicata effect. This would be 17 an extensive task, and would require more than the 18 period of time allocated to me today. 19 Clearly, however, as the Iran-US Claims Tribunal 20 observed in Case B61, the res judicata should not extend 21 to "any peripheral or subsidiary matters, or obiter 22 dicta" in those awards, or to paragraphs in which there 23 was no ruling made at all. 24 But as shown on my final slides, which we'll come to 25 now, a number of the paragraphs of the partial award,</p> <p style="text-align: center;">Page 157</p>	<p>14:54 1 (Slide 16) And then three more examples. 2 Paragraphs 464 to 468, which underpinned the decisions 3 on drawdown flushing, et cetera, prohibiting the 4 reduction of water level below dead storage. 5 And then 469 to 470 explained how those systemic 6 findings around reduction of the water level below dead 7 storage and drawdown flushing, how those findings were 8 unaffected by the Neutral Expert's previous decision in 9 Baglihar and did not change the res judicata effect of 10 that determination only for the Baglihar HEP. Those 11 paragraphs in particular are essential in informing the 12 systemic interpretations at dispositifs B(1) and B(2). 13 And without them, there would have been clearly 14 confusion over how that decision would sit alongside 15 Baglihar, for example. 16 Then finally by way of example, paragraphs 509, 517, 17 521 and 522. And the impact of those was confirmed 18 explicitly in the later decision on interpretation. And 19 they explain how the general prohibitions on reduction 20 of the water level below dead storage and on drawdown 21 flushing were based, first of all, on the availability 22 of alternative methods of sediment control at 23 appropriate locations for Indian HEPs on the Western 24 Rivers; and secondly, that those findings were 25 unaffected by arguments about best practices in HEP</p> <p style="text-align: center;">Page 159</p>
<p>14:52 1 for example, can clearly be identified as having 2 res judicata effect because they provide important 3 underlying reasoning for the Court's dispositifs. 4 (Slide 15) We can see here on the slide, these 5 include, of course, paragraphs 476 and 479, which you 6 cited to this effect in your own decision on competence. 7 They include paragraph 410. And in each of these on the 8 list, I've identified to which dispositive paragraphs 9 these relate. 10 Paragraph 410, which underpinned a number of the 11 dispositifs, that confirmed the unrestricted use and 12 let-flow provisions, and the deliberate division of the 13 Western and Eastern Rivers between the parties as 14 a defining characteristic of the Treaty and part of its 15 object and purpose. 16 Then we see paragraphs 433 to 436. And they engaged 17 in a systemic interpretation of the words "then-existing 18 Agricultural Use or hydro-electric use of Pakistan" in 19 paragraph 15(iii) of Annexure D of the Treaty. They are 20 clearly systemic interpretations. 21 The fourth example is paragraphs 448 to 452, which 22 again were important reasoning to a number of 23 dispositifs in confirming that principles of 24 international environmental law must be taken into 25 account when interpreting and applying the Treaty.</p> <p style="text-align: center;">Page 158</p>	<p>14:56 1 design and operation. 2 All of these paragraphs, we say, set out critical 3 rationale and reasoning for the dispositifs identified 4 in these examples. 5 Now, a similar exercise could have been done, of 6 course, in relation to the final award, but time doesn't 7 allow for that today. But I think and I hope that these 8 examples will be illustrative as to how the approach -- 9 which is well settled as a matter of international 10 law -- could be applied to the Kishenganga partial 11 award, particularly to issues that are relevant in the 12 dispute before you. 13 That actually concludes my submission, and 14 Pakistan's substantive submissions in respect of 15 paragraph 35(a) of PO6. So unless there are any further 16 questions, I invite you to call on Sir Daniel or 17 a break, as you decide. 18 THE CHAIRMAN: Mr Minear. 19 (2.57 pm) 20 Questions from THE COURT 21 MR MINEAR: Thank you, Mr Fiatta. Let me describe 22 a situation that might help me understand your position 23 on res judicata. 24 Annexure E is not a part of the dispute that 25 Pakistan has raised. We've raised questions about</p> <p style="text-align: center;">Page 160</p>

14:57 1 Annexure E, however. Suppose that we've looked at  
 2 Annexure E and decided that our construction of it  
 3 informs our decision on Annexure D, which is a part of  
 4 your dispute: would a future Court be bound by our  
 5 construction of Annexure E in the course of our  
 6 interpretation of D?  
 7 MR FIETTA: Well, you're right it's not part of the dispute  
 8 that's been referred to you. I think the answer to your  
 9 question may depend on how you frame the dispositive and  
 10 how broadly, perhaps, you frame the dispositive, because  
 11 it may or may not be possible to frame the dispositive  
 12 findings in a way that does not require reference to any  
 13 paragraphs in the reasoning around Annexure E, doesn't  
 14 require those to be formed as part of the res judicata  
 15 underpinning the dispositive paragraphs.  
 16 To the extent that any such paragraphs were  
 17 essential rationale to your dispositive findings, they  
 18 could form part of the res judicata. But I'm not  
 19 certain, by any means, that they would need to.  
 20 MR MINEAR: Just to refine this a bit, suppose that we said  
 21 that our construction of Annexure D is consistent with  
 22 our understanding of Annexure E: would that give any  
 23 res judicata effect to our conception of Annexure E?  
 24 MR FIETTA: I think the devil would be in the detail.  
 25 I don't want to avoid the question. It really depends

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14:59 1 though on whether that assessment of Annexure E was  
 2 deemed to be essential rationale to your interpretation  
 3 of Annexure D or rather some obiter dictum -- which it  
 4 may well be viewed as in a number of domestic systems --  
 5 which is not essential to your ratio decidendi on  
 6 interpretation that you've been asked to make of  
 7 Annexure D.  
 8 Annexure E is not formally part of the dispute. So  
 9 I think that's a good starting point, and would lead to  
 10 an assumption perhaps that any discussion of Annexure E  
 11 need not form part of the ratio decidendi and  
 12 res judicata. It is only if you heavily relied on  
 13 an interpretation of Annexure E in order to inform your  
 14 interpretation of Annexure D that it might more clearly  
 15 form part of your res judicata. And I think certainly  
 16 our position is that you would not need to do that.  
 17 MR MINEAR: Thank you.  
 18 THE CHAIRMAN: Mr Fietta, your reference to the  
 19 International Law Association's work was of interest.  
 20 And it triggered off in my mind that last August, in  
 21 Angers, l'Institut de Droit International completed work  
 22 on a project that concerned the use of case law and  
 23 precedent. And I'm just wondering in the course of your  
 24 work whether you had occasion to take a look at what the  
 25 Institut did in that project or not.

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15:00 1 MR FIETTA: Not yet, no. It's something we can come back to  
 2 if necessary. The Institut's work is always highly  
 3 informative.  
 4 THE CHAIRMAN: No, it may not be necessary. As I recall  
 5 that project, it was dominantly focused not so much on  
 6 res judicata as on the use of prior case law by  
 7 subsequent courts and tribunals, in the same way that  
 8 you've been relying on ICJ jurisprudence and Iran-US  
 9 Claims Tribunal jurisprudence and so on. So it may well  
 10 be a completely different beast. I just wanted to see  
 11 if you had already looked at it and set it aside, or  
 12 whether it was something that might be worth a look.  
 13 A different question for you: we did have  
 14 a question 7 on the Neutral Expert and precedential  
 15 effects. I take it Sir Daniel will be taking that up in  
 16 his presentation, rather than coming to you?  
 17 MR FIETTA: He will, yes.  
 18 THE CHAIRMAN: Okay. In that case, I think we are done with  
 19 you, Mr Fietta, other than to say: thank you so much for  
 20 the presentation.  
 21 MR FIETTA: Thank you.  
 22 THE CHAIRMAN: As always, very helpful.  
 23 So, Sir Daniel, we are a bit early to be taking  
 24 a coffee break. So we could simply move on to you,  
 25 unless you see any reason to take a break now.

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15:02 1 SIR DANIEL: Mr Chairman, we are only a bit early, by  
 2 ten minutes or so, because we started a little bit  
 3 early. I think it would probably be sensible, as we're  
 4 coming to the last submissions, if you're amenable to  
 5 this, that we take a break now, even if it's a briefer  
 6 break, and then come back for the final stretch.  
 7 THE CHAIRMAN: That's fine. Let's take the full half-hour  
 8 if we think we will still be able to fit it in by the  
 9 end of the day.  
 10 SIR DANIEL: We will.  
 11 THE CHAIRMAN: Let's return at 3.30.  
 12 SIR DANIEL: Thank you very much.  
 13 (3.02 pm)  
 14 (A short break)  
 15 (3.28 pm)  
 16 THE CHAIRMAN: Welcome back, everyone.  
 17 I think we are now ready for your closing  
 18 submissions, Sir Daniel.  
 19 Second-Round Closing Statement  
 20 SIR DANIEL: Thank you very much, Mr Chairman, members of  
 21 the Court. I have the sense that I'm going to be  
 22 stepping into my biblical namesake now.  
 23 I'm going to be addressing you on four issues:  
 24 first, question 8, the first part of question 9 and  
 25 question 10 concerning Annexure E, that's where the

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15:29 1 biblical namesake comes in; the second is questions 7(a)  
 2 and 7(b), relating to the competence of the Neutral  
 3 Expert; the third is, Mr Chairman, to address your  
 4 five-step sequence for applying sources of law or  
 5 practices; and then fourth, I will have some brief  
 6 closing remarks.  
 7 Mr Chairman, members of the Court, I do propose to  
 8 take you, in the course of my opening submissions on  
 9 Annexure E, to the Treaty. We will put it on the  
 10 screen, but if you would like to mark it up, it may be  
 11 useful for you to have your hard copies available, or  
 12 indeed marking up in electronic form.  
 13 Now I should add, we are obviously, as I mentioned  
 14 in opening this morning, very mindful of the fact that  
 15 you have a lot of interest in this. I think your  
 16 questions on Annexure E probably started the proceedings  
 17 last week -- I haven't been back to check -- but they  
 18 have certainly closed the proceedings just before the  
 19 break, Mr Minear, with your question to Mr Fietta. And  
 20 that's the reason why we proposed the possibility of  
 21 limited post-hearing submissions to address these  
 22 issues.  
 23 I am going to endeavour to not take you systemically  
 24 through Annexure E but make some framing remarks about  
 25 the relationship between Annexure D and Annexure E.

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15:32 1 that Pakistan set out the origins of the Kishenganga  
 2 dispute in Appendix A to its response on competence,  
 3 that very detailed appendix which was tracing the  
 4 origins of the dispute. And as explained in paragraph 1  
 5 of Appendix A, India first formally informed Pakistan of  
 6 its plan to build a reservoir dam with a HEP on the  
 7 Kishenganga site in June 1994, and that's at  
 8 Exhibit P-47.  
 9 At that point, the project was designed as a storage  
 10 work under Annexure E. And Pakistan objected to this  
 11 initial proposal on several grounds. You will find  
 12 Pakistan's objections captured, amongst others --  
 13 I think there are additional documents, but amongst  
 14 others -- at Exhibit P-48, which is a September 1994  
 15 letter, and Exhibit P-49, which is an October 1997  
 16 letter.  
 17 The key elements of the objection were: first of  
 18 all, the impermissible diversion of the river; in other  
 19 words, the impermissibility of a storage work  
 20 simultaneously incorporating a diversion work. This was  
 21 not envisaged by Annexure E. There is no equivalent in  
 22 Annexure E to Annexure D, paragraph 15,  
 23 subparagraph (iii).  
 24 The second point of objection was the prejudicial  
 25 effect on Pakistan's Neelum-Jhelum plant downstream,

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15:30 1 I must say, just as a headline on this point, right  
 2 from the outset, if you are minded -- and I certainly  
 3 don't want to dissuade you from doing so, because it  
 4 will be useful to focus our attention -- but if you are  
 5 minded to take me into small aspects of the some of the  
 6 definitions, for example, or the calculations, I will  
 7 simply park those, so that we can come back to them  
 8 later if you do give us the latitude to put in those  
 9 submissions. This is simply a question of not wanting  
 10 to speculate when we may not have done the research and  
 11 the thinking.  
 12 So turning first to question 8, the first part of  
 13 question 9 and question 10, all arising from Annexure E  
 14 issues. And it's convenient to address question 10 and  
 15 the first part of question 9 before turning to  
 16 question 8, as they admit of rather easier answers.  
 17 By question 10, you asked what the basis was:  
 18 "... for Pakistan's belief that the Kishenganga HEP,  
 19 as originally planned as a storage work, violated  
 20 Annexure E? Does it relate to Annexure E, Paragraph 7?"  
 21 You will find elements of a response to this  
 22 question at the following transcript references: Day 3,  
 23 page 201, line 2 to page 202, line 1; and then Day 4,  
 24 page 25, lines 11-17.  
 25 You will recall, Mr Chairman, members of the Court,

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15:33 1 which is contrary to paragraph 10 of Annexure E.  
 2 The third point of objection was the lack of  
 3 complete information on the project that India had  
 4 provided to Pakistan. This is contrary to paragraph 12  
 5 of Annexure E. Paragraph 12 of Annexure E corresponds  
 6 to paragraph 9 of Annexure D, the provision of  
 7 information six months before. So Pakistan's objection  
 8 was that there was a lack of complete information.  
 9 Then Pakistan also objected that there was a breach  
 10 of several of the design criteria in respect of storage  
 11 works at paragraph 11 of Annexure E.  
 12 Pakistan's objections were discussed, inter alia, at  
 13 the 92nd and 93rd meetings of the Permanent Indus  
 14 Commission, and you will find those documents at  
 15 Exhibit P-51 and Exhibit P-645; that was just admitted,  
 16 by your direction, this morning. The minutes of the  
 17 93rd meeting, for example, set out in extensive detail  
 18 the parties' discussions regarding each aspect of  
 19 Pakistan's objection under paragraph 11 of Annexure E.  
 20 So in answer to your question, Pakistan's objection  
 21 to the Kishenganga plant as a storage work did not  
 22 relate to paragraph 7 of Annexure E.  
 23 In April 2006, India informed Pakistan that "due to  
 24 local concerns over the extent of submergence and  
 25 environmental issues", India had reconfigured the

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15:35 1 Kishenganga project from a storage work to  
 2 a run-of-river plant governed by Annexure D of the  
 3 Treaty. And you will find that at Exhibit P-54.  
 4 With that, I'll turn to question 9, first sentence,  
 5 in which you asked whether the existence of Annexure E  
 6 has a bearing on the let-flow, non-interference,  
 7 no-storage principle advanced by Pakistan. And you will  
 8 find elements of a response to this question at the  
 9 following transcript references: Day 3, page 205,  
 10 line 15 to page 206, line 22; Day 3, page 207, line 11  
 11 to page 208, line 2; Day 4, page 99, line 15 to  
 12 page 100, line 17; and Day 5, page 23, line 2 to  
 13 page 25, line 11.  
 14 Now the short answer to your question is that  
 15 Annexure E evidently has a bearing on India's let-flow,  
 16 non-interference, no-storage obligation. And I'm  
 17 choosing the words quite carefully, "has a bearing on"  
 18 those obligations. But we reserve our position on  
 19 a more precise formulation of the nature and extent of  
 20 the interaction for any post-hearing submissions that  
 21 you may direct.  
 22 And the reason for reserving our position beyond the  
 23 language of "has a bearing on" is that unlike, for  
 24 example, Annexure D, Annexure E is not referenced in  
 25 Article III, paragraph (2), and it's obviously not

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15:38 1 Western Rivers.  
 2 I don't need to take you to that. But at some  
 3 point, particularly if you are interested -- as I detect  
 4 you are -- in the holistic interpretation of the Treaty,  
 5 you will wish to have a look at Annexure C as well, in  
 6 particular because there are cross-references between  
 7 Annexure C and Annexure E. As we will come on to in  
 8 just a moment, there are circumstances in which the  
 9 water impounded in a storage work can be used for  
 10 agricultural purposes. That's not the case with regards  
 11 to pondage for a run-of-river HEP.  
 12 And Annexure C, just to run through a number of  
 13 provisions for the transcript which you may want to pick  
 14 up later, it sets limits on maximum withdrawals of water  
 15 for purposes of agricultural use: that's at paragraph 3.  
 16 It prescribes restricted periods in which there may be  
 17 withdrawals from the rivers: that's at paragraph 6. It  
 18 addresses the use of water stored in storage works for  
 19 agricultural purposes: amongst other provisions, that's  
 20 paragraphs 6 and 7.  
 21 And there are important interactions on this between  
 22 Annexure C and Annexure E. And as one looks across, for  
 23 example, Annexures C, D and E, you will see that  
 24 wherever there is an entitlement based on an exception  
 25 for India, that entitlement is very tightly defined, in

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15:36 1 referenced in Article III, paragraph (1). So we would  
 2 like to explore a little bit more closely whether there  
 3 is, as it were, any distinction to be drawn between the  
 4 unrestricted rights addressed in Article III,  
 5 paragraph (1) and paragraph (2), subject to the  
 6 exceptions and the no-storage obligation.  
 7 I think that that's probably splitting hairs  
 8 a little bit, because it's quite clear that, alongside  
 9 Annexure D, Annexure E is an express exception to the  
 10 prohibition on India storing water and constructing  
 11 storage works on the Western Rivers, which is  
 12 affirmatively set out in Article III, paragraph (4).  
 13 I note though that this is subject to very tight  
 14 constraints in Annexure E, and we'll come to some of  
 15 those. And I note also that some of the provisions of  
 16 Annexure E reflect similar principles to those laid down  
 17 in Annexure D; but others are bespoke, given the special  
 18 character of storage works.  
 19 Mr Chairman, members of the Court, I add here for  
 20 completeness -- because of course there are other  
 21 aspects of the Treaty that we haven't looked at over the  
 22 course of the last seven days -- I add for completeness  
 23 that, like Annexure D, Annexure C establishes an express  
 24 exception to Pakistan's right of unrestricted use for  
 25 purposes of agricultural use by India of the

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15:40 1 a very extensive fashion.  
 2 So then turning to question 8, where you asked what  
 3 the relationship is between Annexure D and Annexure E to  
 4 the Treaty, recognising that Annexure E includes storage  
 5 for use of generating power. And you went on to ask:  
 6 "What sort of power storage work is permitted in  
 7 this regard?"  
 8 And you will find elements of a response to this  
 9 question at the following transcript references: Day 3,  
 10 page 192, line 1 to page 193, line 19; Day 3, page 205,  
 11 line 15 to page 206, line 8; Day 3, page 207, line 11 to  
 12 page 208, line 2; Day 3 page 220, lines 7-25; and Day 4,  
 13 page 25, lines 3-10.  
 14 In the event that you do accept our proposal for  
 15 a post-hearing submission, we will address in a more  
 16 considered manner, in writing, the interaction, the  
 17 relationship between Annexure D and Annexure E for your  
 18 purposes, for interpretative purposes. But let me start  
 19 off with some preliminary observations at this point.  
 20 If we could have the Treaty on the screen, please.  
 21 So if we could have the screen on. Thank you.  
 22 The starting point is the relationship between the  
 23 two annexures, what each addresses; that they largely  
 24 address different things, although there are some  
 25 elements that overlap.

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15:42 1 So if we start off with the difference in focus,  
 2 Annexure D, paragraph 1: a provision that you know very  
 3 well, but we won't have focused on this for these  
 4 purposes. You will see in the second part of  
 5 paragraph 1, it says:  
 6 "Provided that the design, construction and  
 7 operation of new hydro-electric plants which are  
 8 incorporated in a Storage Work (as defined in  
 9 Annexure E) shall be governed by the relevant provisions  
 10 of Annexure E."  
 11 So we have, right from the outset of paragraph 1,  
 12 Annexure D, really a carve-out for design, construction  
 13 and operation of hydroelectric plants that are  
 14 incorporated in a storage work. They are not addressed  
 15 in Annexure D.  
 16 Mr Minear, it may be, at least I hope it will be the  
 17 case that, as I come to the end of my submissions, there  
 18 may be some further clarity in the response that  
 19 Stephen Fietta gave to your question about what happens  
 20 if the Court were inclined to draw on Annexure E for  
 21 purposes of its Annexure D interpretation. And I think  
 22 Mr Fietta said that may not be necessary, and I'll come  
 23 on to address some of that quite specifically.  
 24 If we could then jump to Annexure E,  
 25 paragraph 2(a)(iii), and you will see there

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15:43 1 a corresponding provision.  
 2 I will start off with paragraph 1, just for  
 3 completeness:  
 4 "The provisions of this Annexure shall apply with  
 5 respect to the storage of water on the Western Rivers,  
 6 and to the construction and operation of Storage Works  
 7 thereon, by India under the provisions of  
 8 Article III (4)."  
 9 And then paragraph 2:  
 10 "As used in this Annexure:  
 11 (a) 'Storage Work' means a work constructed for  
 12 purposes of impounding the waters of a stream; but  
 13 excludes ...  
 14 (iii) a new work constructed in accordance with the  
 15 provisions of Annexure D."  
 16 So we have between paragraph 1 of Annexure D and  
 17 paragraph 2(a)(iii) of Annexure E, if you like,  
 18 a bifurcation, a parting of the waters. One deals with  
 19 run-of-river HEPs; the other one deals with storage  
 20 works.  
 21 As you will be very well aware, the two annexures  
 22 have bespoke definitions for the most part. There is  
 23 some crossover on a number of points, and I'll come on  
 24 to identify those. But for the most part, they are  
 25 bespoke definitions, even if there is a lot of

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15:45 1 similarity -- apparent similarity -- between them.  
 2 So then considering some areas of overlap between  
 3 Annexures D and E.  
 4 First of all -- and I don't need to take you to  
 5 this, but perhaps we may come back to it -- Annexure E  
 6 adopts the Annexure D definition of "Pondage". And you  
 7 will find that at Annexure E, paragraphs 21(a) -- the  
 8 same definition, there's a cross-reference to the  
 9 definition of "Pondage" in Annexure D.  
 10 Second, Annexure E proceeds on the basis of  
 11 a similar structural framework. There are mandatory  
 12 design criteria, there are provisions of information  
 13 requirements, there are mandatory operational criteria  
 14 as regards a power plant incorporated into a storage  
 15 work. So the Annexure E structural framework is a very  
 16 similar in many respects to the Annexure D structural  
 17 framework.  
 18 Elements of overlap, but I put it in terms of  
 19 "overlap" because it's not the same: storage works can  
 20 have "a power plant" attached. Annexure E is quite  
 21 careful not to talk about "a run-of-river plant". The  
 22 language that's used is "a power plant" -- lower case  
 23 PP -- attached. And that appreciation comes, of course,  
 24 from paragraph 1 of Annexure D, which expressly talks  
 25 about a hydroelectric plant attached to a storage work.

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15:46 1 It also comes, inter alia, from -- or can be  
 2 deduced/implied from -- the definitions of Annexure E,  
 3 and you will find it referenced in a number of  
 4 provisions. For example, paragraph 11(g) of Annexure E  
 5 talks about:  
 6 "If a power plant is incorporated in the Storage  
 7 Work ..."  
 8 And then you've got paragraph 21 of Annexure E,  
 9 which also talks about a power plant that's incorporated  
 10 in a storage work:  
 11 "If a hydro-electric power plant is incorporated in  
 12 a Storage Work ..."  
 13 That's Annexure E, paragraph 21.  
 14 The filling of dead storage is addressed in  
 15 Annexure E at paragraphs 18 and 19. And indeed  
 16 Annexure D on this occasion cross-refers to Annexure E,  
 17 paragraphs 18 and 19. Annexure D does this in  
 18 paragraph 14. So there is that cross-reference.  
 19 Then there is a prohibition in both annexures on the  
 20 depletion of dead storage. You've got this in  
 21 Annexure D, paragraph 8(d), and Annexure E,  
 22 paragraph 19.  
 23 So the first tranche of provisions that I took you  
 24 to were addressing a different focus. The ones I've  
 25 just taken you to address elements of overlap.

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15:48 1 There is also a commonality of purpose, but  
 2 a commonality of purpose that is driven by a difference  
 3 in approach. Both operationalise the parameters of the  
 4 exception to India's no-storage obligation. Both  
 5 Annexure D and Annexure E operationalise the parameters  
 6 of those exceptions, but subject to very tight  
 7 constraints. And both impose significant design and  
 8 operational constraints. So that's the commonality of  
 9 purpose.  
 10 But then we come to the differences in approach  
 11 between the two annexures.  
 12 So with regard to Annexure D, it does not contain  
 13 a limit on the number of run-of-river HEPs. It does not  
 14 prescribe the location of run-of-river HEPs. It does  
 15 not describe the aggregate pondage. It describes the  
 16 calculation of the maximum allowable pondage for  
 17 an individual plant, but it does not address aggregate  
 18 pondage or the aggregate storage of work. It does not  
 19 address, in the way that Annexure E does, the refilling  
 20 of the reservoir. There are very tight provisions  
 21 relating to the refilling of the reservoir of  
 22 an Annexure E storage work. And it does not address  
 23 timing of use. Once you've got your pondage pool under  
 24 Annexure D for a run-of-river HEP, the operator can use  
 25 that pondage pool -- within the operational constraints

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15:50 1 of paragraph 15, but can utilise that pondage pool as he  
 2 or she sees fit. We'll see in just a moment this is  
 3 different with regards to Annexure D.  
 4 Annexure D, though, does contain limits on the use  
 5 of pondage, and paragraph 2(c) of Annexure D establishes  
 6 a limit on the use of pondage for purposes of power  
 7 generation. That's the language that's used in  
 8 paragraph 2(c). It doesn't incorporate or address  
 9 agricultural uses.  
 10 When, though, we turn to Annexure E, Annexure E is  
 11 less limited than Annexure D when it comes to use.  
 12 A storage work can be either a single-purpose or  
 13 a multipurpose storage works. It can be for  
 14 agricultural use: that's the linkage to Annexure C,  
 15 which addresses agricultural use. It can also be used  
 16 for purposes of power generation. And of course, as we  
 17 know, and have heard from Dr Morris, it impounds  
 18 a considerable volume of water which can be used,  
 19 released downstream into a cascade for other purposes.  
 20 But then Annexure E does impose strict  
 21 limitations -- in some cases, very strict and very  
 22 specific limitations -- on location, on total aggregate  
 23 storage, on the filling of the reservoir and on timing  
 24 and use.  
 25 It's evident, we say, from this -- indeed,

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15:52 1 manifestly evident from this -- that Annexure D  
 2 contemplates, in practice, small HEPs, usually located  
 3 downstream, to suit the topography, that are to be used  
 4 for the limited purpose of power generation. Whereas  
 5 Annexure E contemplates large works, usually located  
 6 upstream, that are suitable for regulating flows of  
 7 water into a downstream cascade for wider use. It's not  
 8 set out in these terms, but that's the nature of the  
 9 constraints of the limitations that are found in both of  
 10 the provisions.  
 11 So Annexures D and E impose different forms of  
 12 constraint on India. And it may be useful -- perhaps  
 13 not so much for purposes of exploring the small detail  
 14 with you but just identifying the provisions where some  
 15 of these Annexure E constraints are located -- for me to  
 16 run through some of them with you. As I say, I may be  
 17 in a position to respond to any questions that you may  
 18 have; I may not. And if I have any doubt, I'm going to  
 19 defer them, if I may.  
 20 So let's start off with location. And if I can take  
 21 you to paragraph 7(iv), which is on the screen.  
 22 You will see there, for example, that it says:  
 23 "Storage works to provide the Power Storage Capacity  
 24 on the Chenab Main specified against item (e) above  
 25 shall not be constructed at a point below Naunut

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15:54 1 (Latitude ... Longitude ...)."  
 2 So there we have a very specific location  
 3 constraint. And just for reference, I don't need to  
 4 take you to this, but if you go back to the definitional  
 5 section in the Treaty at Article I, paragraph (4), you  
 6 will see the definitions of what is meant by "Main" in  
 7 contrast to a "Tributary". And we know that when we go  
 8 up to the table that you asked a number of questions  
 9 about, you will see that it breaks out "The Jhelum  
 10 (excluding the Jhelum Main)", then "The Jhelum Main",  
 11 then "The Chenab (excluding the Chenab Main)", and  
 12 "The Chenab Main". So there are some specific  
 13 locational provisions.  
 14 We then look at aggregate storage. And I'm less  
 15 here concerned, Mr Chairman, with the question that you  
 16 put earlier -- I think it was you, Mr Chairman -- about  
 17 the overall volume of water that's impounded, when you  
 18 were doing your calculations to million acre-feet, but  
 19 more concerned just to look at the aggregate storage.  
 20 And this is against the contrast of Annexure D not  
 21 specifying, on an aggregate basis, how much water can be  
 22 impounded in the operating pool by way of pondage of the  
 23 run-of-river HEPs; whereas here, as regards the storage  
 24 works, there is an aggregate storage limit, and you see  
 25 that very clearly stated in paragraph 7.

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15:55 1 I note for completeness -- but this is not a point,  
 2 I say candidly, on which I am in a position to assist  
 3 you in terms of all of its full detail -- but you will  
 4 see, for example, that pondage is excluded from this  
 5 aggregate storage capacity. Because, if you have a look  
 6 at paragraph 8(3), you will see there that it says:  
 7 "The figures specified in Paragraph 7 above shall be  
 8 exclusive of the following: ..."  
 9 And then subparagraph (e):  
 10 "The volume of Pondage for hydro-electric plants  
 11 under Annexure D and under Paragraph 21(a)."  
 12 And if you would like just to jump forward to  
 13 paragraph 21(a) -- but I don't propose to address this  
 14 just at the moment -- you will see that paragraph 21  
 15 addresses:  
 16 "If a hydro-electric ... plant is incorporated in  
 17 a Storage Work ... the plant shall be so operated  
 18 that: ..."  
 19 And then subparagraph (a):  
 20 "... the maximum Pondage (as defined in  
 21 Annexure D) ..."  
 22 That's the cross-reference to Annexure D:  
 23 "... shall not exceed the Pondage required for firm  
 24 power ..."  
 25 I'll come back to that provision a little bit later,

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15:58 1 designed and operated as not to adversely affect the  
 2 then existing Agricultural Use or hydro-electric use on  
 3 that Tributary."  
 4 So once again, you have in paragraph 10 a balance  
 5 that is struck. There are a very extensive number of  
 6 mini-bargains. We've taken you to the three main  
 7 bargains for purposes of these proceedings: the peace  
 8 bargain, the Treaty bargain and the hydro bargain. But  
 9 in all of these things, there are sub-bargains.  
 10 So while India is entitled to construct storage  
 11 works when we come to the tributary of the Jhelum Main,  
 12 paragraph 10 of Annexure E then establishes design and  
 13 operation restrictions.  
 14 We then have, in paragraph 11 -- and I'm not going  
 15 to take you to any specific ones, but just to identify  
 16 the scheme here -- we have what in structural terms is  
 17 similar to paragraph 8 of Annexure D, because this is  
 18 the mandatory design criteria:  
 19 "The design of any Storage Work ... shall conform to  
 20 the following criteria: ..."  
 21 And there are then seven subparagraphs. And you are  
 22 obviously very familiar with this because you've asked  
 23 specific questions, most recently to Professor Webb,  
 24 about subparagraph (e) and "Outlets [and] other works of  
 25 sufficient capacity".

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15:57 1 but just in the context of aggregate storage, I wanted  
 2 to reference it.  
 3 If we go back to paragraph 7, I note also for  
 4 completeness that in that table that you've seen so many  
 5 times before, that, for example, when it comes to  
 6 storage capacity, general storage capacity and power  
 7 storage capacity for the Jhelum Main, there is no  
 8 entitlement, save as provided in paragraph 9.  
 9 Paragraph 9 is concerned with flood control, but  
 10 it is also subject to limitation. And again, I don't  
 11 propose to take you to the detail of paragraph 9, but  
 12 paragraph 9 is in the same spirit of tight control. So  
 13 where India is entitled to construct works for purposes  
 14 of flood control, that then again is subject to  
 15 limitation.  
 16 I note also, while we are at paragraph 9, that  
 17 Annexure E specifically addresses downstream effects.  
 18 So if you have a look at paragraph 10 of Annexure E, it  
 19 says:  
 20 "Notwithstanding the provisions of Paragraph 7  
 21 [above] ..."  
 22 That's the aggregate storage:  
 23 "... any Storage Work to be constructed on  
 24 a Tributary of The Jhelum on which Pakistan has any  
 25 Agricultural Use or hydro-electric use shall be so

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16:00 1 And I venture to speculate that it may be the  
 2 paragraph 11 provisions that you may be most interested  
 3 in for purposes of your contextual interpretation of  
 4 paragraph 8. You may want to know whether there is  
 5 anything in paragraph 11 that informs the interpretation  
 6 of paragraph 8 in Annexure D.  
 7 You've heard what my co-counsel have had to say so  
 8 far; I'm not in a position to shed any further light on  
 9 that. But that would be a matter that we would come  
 10 back to in a post-hearing submission to see whether  
 11 there are any tighter points that might be made.  
 12 Mr Chairman, members of the Court, I'd then like to  
 13 take you to paragraph 18, if I may, because this is also  
 14 a matter of some importance when it comes to storage  
 15 works:  
 16 "The annual filling of Conservation Storage ..."  
 17 The "Conservation Storage" being the significant  
 18 volume of impounded water:  
 19 "... and the initial filling below the Dead Storage  
 20 Level, at any site, shall be carried out at such times  
 21 and in accordance with such rules as may be agreed upon  
 22 between the Commissioners. In case the Commissioners  
 23 are unable to reach agreement, India may carry out the  
 24 filling as follows: ..."  
 25 And then we have three subparagraphs, and they are

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16:01 1 rather interesting and rather restrictive:  
 2 "(a) if the site is on The Indus, between 1st July  
 3 and 20th August ..."  
 4 So you've got seven weeks in which you can fill.  
 5 "(b) if the site is on The Jhelum, between 21st June  
 6 and 20th August ..."  
 7 So slightly longer: two months, eight or nine weeks.  
 8 "(c) if the site is on The Chenab, between 21st June  
 9 and 31st August ..."  
 10 Slightly longer.  
 11 "... at such rate as not to reduce, on account of  
 12 this filling, the flow in the Chenab Main above Merala  
 13 to less than 55,000 cusecs."  
 14 So once again, you have very, very tight -- not just  
 15 constraints in terms of the aggregate volume, but  
 16 constraints in terms of when those dams can be filled.  
 17 This is consistent, we say, with the balance, with  
 18 the bargain. It's also consistent, we say -- perhaps  
 19 here more explicitly than in the case of run-of-river  
 20 HEPs -- with the issue of downstream effects, because  
 21 the filling of a large storage dam is obviously going to  
 22 have potentially very significant downstream effects,  
 23 and it is here confined to periods in the height of the  
 24 wet season.  
 25 We then come to paragraph 21 of Annexure E, which is

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16:04 1 storage dams, dealing with sedimentation:  
 2 "When the Live Storage Capacity of a Storage Work is  
 3 reduced by sedimentation, India may, in accordance with  
 4 the relevant provisions of this Annexure, construct new  
 5 Storage Works or modify existing Storage Works so as to  
 6 make up the storage capacity lost by sedimentation."  
 7 Once again, I'm not in a position, I think, to help  
 8 you with the small detail of that, but it is something  
 9 that we can come back to.  
 10 Mr Chairman, members of the Court, this brings me  
 11 back to your question, question 8:  
 12 "What is the relationship between Annexure D and  
 13 Annexure E to the Treaty, recognizing that Annexure E  
 14 includes storage for use in generating power? What sort  
 15 of power storage work is permitted in this regard?"  
 16 And let me address the second part of the question  
 17 first:  
 18 "What sort of power storage work is permitted in  
 19 this regard?"  
 20 My observations here come back to the point that  
 21 I've just been making, and that is that Annexure D at  
 22 paragraph 1 and Annexure E, at paragraph 2(a)(iii), make  
 23 it absolutely clear that run-of-river HEPs are addressed  
 24 in and governed by Annexure D only. They are not  
 25 addressed in and they are not governed by Annexure E.

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16:03 1 the power plant operation. And I imagine that this may  
 2 also be a series of provisions that may be important for  
 3 your interpretative purposes or just for peace of mind.  
 4 And we would address this in any post-hearing  
 5 submissions, if you are minded to so direct.  
 6 If you have a look, for example, at paragraph 21(b),  
 7 you will see an element of the let-flow obligation:  
 8 "... the plant shall be so operated that: ..."  
 9 And then:  
 10 "(b) except during the period in which a filling is  
 11 being carried out in accordance with the provisions of  
 12 Paragraph 18 or 19, the volume of water delivered into  
 13 the river below the work during any period of seven  
 14 consecutive days ..."  
 15 Once again, we've got the focus on days, just to  
 16 underline that.  
 17 "... shall not be less than the volume of water  
 18 received in the river upstream in the work in that  
 19 seven-day period."  
 20 So here we have a let-flow obligation again, when  
 21 it comes to the operation of these plants, where  
 22 a hydroelectric power plant is part of that operation.  
 23 So it has parallels with Annexure D, but it's different.  
 24 Then I note, just for completion, paragraph 23,  
 25 which is a rather bespoke and unique provision for

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16:06 1 So whatever the overlap in purpose and scheme, and  
 2 sometimes in their terms, Annexure E does not address  
 3 run-of-river HEPs. Annexure E does contemplate the  
 4 possibility of the incorporation of what is termed  
 5 a "power plant", as part of a storage work, but this is  
 6 not a run-of-river HEP as is defined, expressly defined,  
 7 in Annexure D.  
 8 We say that this is highly material, both  
 9 conceptually and for your deliberative and adjudicatory  
 10 task.  
 11 It is conceptually highly material because it  
 12 reinforces the character of Annexure D.3 plants, that  
 13 they are run-of-river plants. This is a definition that  
 14 you find in Annexure D, paragraph 2(g): that's where the  
 15 definition is found. And it follows from this  
 16 differentiation that the power plants addressed in  
 17 Annexure E are not akin, formally speaking, to  
 18 run-of-river HEPs in terms of their intended function  
 19 and in other important respects.  
 20 We accept, of course -- we must do, on the face of  
 21 the Treaty -- that you can have a power plant that's  
 22 incorporated into a storage plant. But they are  
 23 otherwise different.  
 24 And we say that this is highly material to your  
 25 deliberative and adjudicatory task, as it would be --

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16:08 1 and, Mr Minear, this comes to your question, I think --  
 2 or perhaps not to your question to Mr Fietta but to  
 3 an underlying consideration that informed your  
 4 question -- we think that it is highly material for your  
 5 task, as we consider that it would be neither  
 6 artificial, frankly, nor terribly difficult for the  
 7 Court to ringfence your analysis and interpretation of  
 8 the Annexure D criteria and other relevant associated  
 9 provisions from any necessary and inevitable Annexure E  
 10 effects.  
 11 In this regard, the approach of the Kishenganga  
 12 Court may be a useful guide. Because the Kishenganga  
 13 Court, in its partial award, addressed elements of  
 14 Annexure E with a relatively broad brush for purposes of  
 15 wrapping up a contextual interpretation of the Treaty,  
 16 but that Court was seemingly not driven to undertake or  
 17 reflect a detailed analysis of Annexure E for purposes  
 18 of its analysis.  
 19 Mr Chairman, members of the Court, perhaps I'll just  
 20 take you briefly to two of the paragraphs of the  
 21 Kishenganga partial award. You will obviously be able  
 22 to look at this yourselves in slower time. But just to  
 23 underline this point about the way in which the  
 24 Kishenganga Court addressed this.  
 25 The two paragraphs that I draw to your attention now

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16:11 1 purpose of Annexure E and Annexure D in terms of the  
 2 restriction of the volume of water, but it made clear  
 3 that the way in which this was done was rather  
 4 different.  
 5 You will see in that paragraph the rather important  
 6 footnote that I think my colleagues have drawn to your  
 7 attention in their submissions. It's footnote 712 of  
 8 the Kishenganga partial award, which records a file note  
 9 from Mr Iliff of 19 April 1960, which talks about the  
 10 negotiating process.  
 11 I then just cite very briefly paragraph 506 of the  
 12 Kishenganga partial award. And again, I won't read the  
 13 whole paragraph, but just the opening parts of it.  
 14 The Court says:  
 15 "Second, the Court notes that in many instances the  
 16 Treaty does not simply restrict the Parties from taking  
 17 certain actions, but also constrains their entitlement  
 18 to construct works that would enable such actions to be  
 19 taken."  
 20 If I may, Mr Chairman, members of the Court, this  
 21 brings me back to a point I made -- I forget when, but  
 22 perhaps on Friday -- about the importance of capturing  
 23 the restrictions on India at the design phase, not at  
 24 the operation phase. Because once the plant is set in  
 25 concrete, and India has the latitude to deploy it

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16:09 1 are paragraphs 504 and 506 of the Kishenganga partial  
 2 award (PLA-3). As you go through the Kishenganga  
 3 partial award, you will, of course, see many, many, many  
 4 more references to Annexure E, but that's usually where  
 5 the Court is describing the arguments of the parties.  
 6 Because Kishenganga began its life, in India's  
 7 conception, as an Annexure E storage work, there's quite  
 8 a lot of discussion about those early origins.  
 9 I don't propose to read the whole of paragraph 504,  
 10 which is quite a lengthy paragraph, but let me just read  
 11 the first part of it. The Kishenganga Court says:  
 12 "First, one of the primary objectives of the Treaty  
 13 is to limit the storage of water by India on the Western  
 14 Rivers (and, correspondingly, to prohibit entirely the  
 15 storage of water by Pakistan on the upper reaches of the  
 16 Eastern Rivers)."  
 17 And then it goes on to say -- this is the relevant  
 18 part:  
 19 "Annexure E to the Treaty strictly limits the volume  
 20 of General Storage, Power Storage, and Flood Storage  
 21 that India may develop on each of the Western Rivers."  
 22 It then goes on to say:  
 23 "For new Run-of-River Plants, Annexure D likewise  
 24 restricts the permissible volume of pondage ..."  
 25 So the Court there drew the equation between the

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16:12 1 perhaps away from the watching gaze of Pakistan, other  
 2 than from downstream effects, it then becomes much more  
 3 difficult to enforce.  
 4 So just to go back to what the Court in Kishenganga  
 5 said:  
 6 "... the Court notes that in many instances the  
 7 Treaty does not simply restrict the Parties from taking  
 8 certain actions, but also constrains their entitlement  
 9 to construct works that would enable such actions to be  
 10 taken."  
 11 It then goes on:  
 12 "Thus, India is not only restricted in storing water  
 13 on the Western Rivers; it is also prohibited from  
 14 constructing Storage Works except within the limited  
 15 capacity permitted by the Treaty."  
 16 And then it goes on to say:  
 17 "Annexure D in turn sets out the permissible  
 18 operation of a Run-of-River Plant ..."  
 19 So the way in which the Kishenganga Court chose to  
 20 deal with, no doubt, the issues that were before them,  
 21 in exactly the way in which you are grappling with them,  
 22 is to demonstrate the contrast between the way in which  
 23 Annexure E and Annexure D goes about dealing with the  
 24 constraints that are imposed.  
 25 There is a footnote (714) as well to that

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16:14 1 paragraph 506 that reads as follows:  
 2 "Paragraph 11 of Annexure E includes similar  
 3 physical restrictions on the design of any Storage Works  
 4 that India may construct on the Western Rivers. As  
 5 a matter of general approach, the Treaty appears to  
 6 routinely reinforce operational limits on the conduct of  
 7 the Parties with physical restrictions on the  
 8 development of infrastructure."  
 9 Again, a point that I've made before, all these  
 10 constraints and restraints have to be addressed at the  
 11 design stage, not simply at the operational stage.  
 12 Now Mr Chairman, members of the Court, there is  
 13 a further and narrower response to be given to your  
 14 question of what kind of storage works are permitted in  
 15 this regard. And the further and narrower response --  
 16 and not in any way inconsistent with what I've just  
 17 said -- is that the kinds of power plants that are  
 18 permitted to be incorporated in a storage work are,  
 19 first of all, any power plant that was incorporated in  
 20 a storage work and which was "in operation on the  
 21 Effective Date" -- so this is a grandfather clause;  
 22 that's at paragraph 3 of Annexure E -- and then in the  
 23 case of power plants incorporated in a new storage work,  
 24 those which fall within the aggregate storage capacity  
 25 set out in paragraph 7 of Annexure E, and which comply

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16:15 1 with the detailed design and operational requirements  
 2 set out in paragraphs 10, 11, 18, 19, 21 and 24.  
 3 So I then turn to the first part of your question 8.  
 4 This asks about the relationship between Annexure D and  
 5 Annexure E to the Treaty for your task, for  
 6 interpretative purposes. And the key elements of our  
 7 response are as follows.  
 8 Both of them are part of the Treaty bargain. Both  
 9 address an exception to India's no-storage obligation in  
 10 Article III(4). Both impose tight constraints on India,  
 11 although in different ways. Both types of plant may be  
 12 used to generate hydroelectric power. Both annexures  
 13 set out design and operation constraints. There are  
 14 some points of overlap in the use of terms, but this is  
 15 quite restricted. But they address two different types  
 16 of plant.  
 17 The constraints are formulated differently. Pondage  
 18 is defined in the same way -- by reference to the  
 19 definition of "Pondage" in Annexure D, paragraph 8(c) --  
 20 but it is calculated differently. In Annexure D, it is  
 21 calculated by reference to paragraph 8(c) and "Firm  
 22 Power" in paragraph 2(i). That's "Firm Power" with  
 23 a capital F, capital P. But in Annexure E, the  
 24 calculation of pondage is addressed in paragraph 21(a),  
 25 and it's described by reference to "firm power",

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16:17 1 lower-case F, lower-case P. That's a point that I think  
 2 we've discussed and which you have already, which is the  
 3 normal use of "firm power".  
 4 Now I add one point just as a holding point,  
 5 because, candidly, we're not -- or at least I'm not --  
 6 entirely clear on this. It's not entirely clear to us  
 7 at this point whether "Pondage" as it's used in  
 8 Annexure E corresponds to "Power Storage", which is  
 9 defined in Annexure E, at subparagraph 2(h). But that's  
 10 a point that we will explore further and come back to  
 11 you insofar as that is relevant.  
 12 So I then come to the relevance of Annexure E for  
 13 your interpretative task.  
 14 We say -- and this will follow very closely from  
 15 what Professor Webb addressed you on, I think it was  
 16 last Tuesday -- we say that Annexure E is relevant for  
 17 the interpretative exercise because it forms part of the  
 18 wider context of the Treaty. So as you're reading  
 19 Annexure D, you have to go on and you have to read  
 20 Annexure E as well.  
 21 It's also relevant because it informs the object and  
 22 purpose of the Treaty. The tight constraints in  
 23 Annexure E are going to inform your appreciation of the  
 24 object and purpose of the Treaty.  
 25 So we say that an appreciation of Annexure E is

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16:19 1 going to be relevant to your understanding of the Treaty  
 2 bargain. But beyond this, we do not consider that  
 3 Annexure E informs the detailed construction of the  
 4 Annexure D design criteria.  
 5 So, Mr Minear, if I can come back again to your  
 6 question to Mr Fietta. You may very well feel in your  
 7 award in due course that you want to make reference to  
 8 Annexure E. Our view is it's not going to be terribly  
 9 difficult, nor terribly artificial, were the Court to  
 10 say, either in terms of, "We are informed by, but  
 11 Annexure D and E are separate, and therefore the  
 12 Annexure E interpretation is not controlling"; or simply  
 13 to adopt the kind of approach that the Court in  
 14 Kishenganga did, which was to reference Annexure E for  
 15 purposes of showing what the object and purpose was, the  
 16 broad approach, which are consistent between the two,  
 17 but actually not drawing any firm conclusions from  
 18 Annexure E for purposes of your Annexure D  
 19 interpretation.  
 20 I should say that we have all collectively, over the  
 21 course of the last week, wondered whether we missed  
 22 a trick somewhere in our 600 pages of pleadings in not  
 23 having another 600 pages dealing with the interpretation  
 24 of Annexure E. And I think the conclusion that we came  
 25 to, particularly when we went back to the Kishenganga

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16:20 1 award, was that, no, we didn't.  
 2 This is not to say that your questions are somehow  
 3 misplaced. I don't for a moment believe that they are,  
 4 because your adjudicatory task, particularly in  
 5 a systemic context, is going to be to look at Treaty as  
 6 a whole -- the context, the object and purpose, whether  
 7 there is cross-referencing in the words. But we do not  
 8 consider that Annexure D informs the detailed  
 9 construction of the Annexure E design criteria. But it  
 10 may very well be relevant and important and helpful to  
 11 you in a contextual analysis or in an object and purpose  
 12 analysis.  
 13 I just make two other points before I move on to  
 14 another topic and pause to see whether you have any  
 15 questions. And that is that Pakistan is aware of only  
 16 one storage work currently in operation or under  
 17 construction on the Western Rivers that incorporates or  
 18 would incorporate a power plant, and that is Pakal Dul,  
 19 which you've heard quite a lot about, in particular from  
 20 Dr Morris. And details of Pakal Dul are set out at  
 21 page 15 of Appendix C1 to Pakistan's Memorial.  
 22 I add, though, a further thought, and I do so simply  
 23 because it joins up some of the dots on the discussion  
 24 that we were having yesterday on information-sharing,  
 25 that Pakistan is aware, but only from public reporting,

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16:23 1 Kishenganga as a plant exceeds the limits, the pondage  
 2 prescribed by Annexure D, would that automatically bring  
 3 the plant into the realm of Annexure E, or might there  
 4 be a scenario in which it neither falls under D nor  
 5 under E?  
 6 SIR DANIEL: I think we would say that it would have to be  
 7 pulled down because it wouldn't fall under E. We don't  
 8 think that it complies to the design and construction  
 9 and operation criteria of Annexure E.  
 10 If you would like, we can come back to that with  
 11 chapter and verse. You will recall the bases of  
 12 objection that I identified that Pakistan raised in the  
 13 1990s, when this was first floated as an Annexure E  
 14 plant, and they were not related to the aggregate volume  
 15 of water but they were relating to a range of other  
 16 things.  
 17 So we would say that it would be inconsistent with  
 18 the Treaty.  
 19 PROFESSOR BUYTAERT: Thank you.  
 20 THE CHAIRMAN: Sir Daniel, I think you made this point,  
 21 but I'd just like to hear you perhaps reaffirm it in  
 22 a little bit more depth. You were talking about the  
 23 significance of location with respect to the constraints  
 24 of Annexure E, and you took us to different provisions,  
 25 including paragraph 7.

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16:22 1 of two further planned storage works incorporating  
 2 a power plant. And that is Bursar I and II and Gypsa I  
 3 and II, of which Pakistan first became aware because,  
 4 I think, they were reported in the press. I believe  
 5 that there has been some subsequent correspondence on  
 6 these issues in the context of the Commission, but that  
 7 we do not have further information.  
 8 Pakistan has set out at a very high level the  
 9 information that Pakistan has on these works in  
 10 Appendix C1 to its Memorial at pages 17 and 18. But we  
 11 note that India has not notified its "plan[] to  
 12 construct" -- the language of Article VII,  
 13 paragraph (2) -- its "plan[] to construct" these storage  
 14 works in respect of these two projects.  
 15 Mr Chairman, members of the Court, I'm about to be  
 16 move to another topic, which is the issues relating to  
 17 competence of a Neutral Expert. But if you have any  
 18 questions, I'd be happy to field them and to park them,  
 19 as may be.  
 20 THE CHAIRMAN: Professor Buytaert.  
 21 PROFESSOR BUYTAERT: Sir Daniel, thank you very much.  
 22 I had a question, on which I actually think I know  
 23 what your answer might be, based on what you just  
 24 explained, but I think I'll ask it nevertheless.  
 25 If one is to decide that the impounded volume of

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16:25 1 As one looks at those location provisions, arguably  
 2 they are pushing you in the direction of storage plants  
 3 being upstream. The paragraph 7 table, for example,  
 4 says that on the Jhelum Main, there will be no general  
 5 storage capacity or power storage capacity; by contrast,  
 6 on the Jhelum excluding the Main, there would be such  
 7 capacity.  
 8 So just looking at some of those provisions -- and  
 9 you also took us, I think, to perhaps ...  
 10 SIR DANIEL: Subparagraph (iv).  
 11 THE CHAIRMAN: Yes, subparagraph (iv) of paragraph 7.  
 12 Arguably it's pushing you in that direction of  
 13 upstream storage works. Is that correct?  
 14 SIR DANIEL: That's exactly correct. And I hope I wasn't  
 15 swallowing my words when I made the point. But that's,  
 16 I think, exactly the purpose: that these dams, which  
 17 would impound more water than you would otherwise get in  
 18 pondage, would be upstream, and they would then be  
 19 used -- as they can be used, if it's a multipurpose  
 20 dam -- for agricultural purposes as well, but for the  
 21 release of water downstream, often into a cascade of  
 22 HEPs.  
 23 THE CHAIRMAN: And you didn't address this, but it seems to  
 24 me a possible further consequence of that analysis would  
 25 be that if the Annexure D HEPs are downstream, with

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16:27 1 a relatively limited pondage of the type that Pakistan  
 2 is advocating for, that in some respects it doesn't  
 3 quite matter how much storage is upstream in terms of  
 4 the possibility of so-called "weaponisation", in the  
 5 sense that if you're going to try to do this in  
 6 a cascading effect, you must be able to pass that very  
 7 large upstream storage through a downstream dam, and  
 8 that that might be difficult if the dam is designed in  
 9 accordance with Annexure D, in not allowing certain  
 10 things such as low-level outlets.  
 11 Would that be correct?  
 12 SIR DANIEL: Absolutely. I think this is a point that  
 13 Dr Morris has made on more than one occasion. If you've  
 14 got downstream HEPs in a cascade which have low-level  
 15 outlets, and those low-level outlets are of a maximum  
 16 size rather than a minimum size, so that they can pass  
 17 the water, then it makes it much more challenging.  
 18 And if memory serves me, when you put a question to  
 19 Dr Morris about this -- if you like, what's the pecking  
 20 order of the concerns -- his response was, if I recall:  
 21 first, floods; second, drought; third, sediment. So  
 22 there is that kind of concern.  
 23 And that's one of the reasons -- it's certainly not  
 24 the only reason, but that's certainly one of the reasons  
 25 why Pakistan considers that it needs to stand on its

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16:28 1 rights about the location, the "plus more" of outlets,  
 2 and about their size.  
 3 THE CHAIRMAN: Right. I think what I was pondering was  
 4 flipping it around a bit. Assuming that the Annexure D  
 5 downstream dams are Treaty-compliant, arguably  
 6 it matters less how extensive the storage is upstream,  
 7 because of an inability to pass the water through the  
 8 lower-stream dams; and therefore, whatever the magnitude  
 9 might be of storage upstream is of less significance?  
 10 SIR DANIEL: I think that that's correct. And that may go  
 11 to your quiet calculation of million acre-feet and the  
 12 quantum, the volume, of water that you were talking  
 13 about. There is an aggregate storage limitation. But  
 14 if that aggregate storage limitation, as it were, has to  
 15 stay in the dam, or has to be managed responsibly  
 16 because of the proper construction of the downstream  
 17 dams, that obviously ameliorates Pakistan's concerns.  
 18 THE CHAIRMAN: Connecting that observation to the actual  
 19 calculations one might make, when I looked at your  
 20 Memorial at paragraphs 5.1.3 through to 5.2.2, I think,  
 21 you tried to assess the gross storage capacity of the  
 22 Indian potential HEPs, the 200-some Annexure D Indian  
 23 HEPs. And you, I think, came to a conclusion that, on  
 24 my conversion to cubic metres, that there would be about  
 25 3.72 billion cubic metres if India built all of its

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16:30 1 potential dams in the way that you think they might be  
 2 doing it. When you add up the general storage and power  
 3 storage of the Annexure E works, you come to a total  
 4 storage capacity of something in the order of  
 5 3.5 billion cubic metres.  
 6 So these calculations could be rechecked, but it  
 7 seems as though the concern about the total storage  
 8 capacity of the Annexure D HEPs is of a magnitude of the  
 9 permitted storage of water for Annexure E works. And so  
 10 part of what I think I was trying to assess is: to the  
 11 extent that Pakistan has allowed that volume of storage  
 12 in Annexure E, how do we think about that in relation to  
 13 the concern of what looks to be a comparable storage in  
 14 Annexure D?  
 15 But part of the answer to that might be: to the  
 16 extent that the Annexure E works are upstream of  
 17 Annexure D works and that you can't actually pass that  
 18 water through, then perhaps that, in part, explains why  
 19 there is a concern about the active storage in the  
 20 Annexure D works, with somewhat less concern about --  
 21 I won't say "less concern"; there's obviously concern  
 22 that Annexure E be followed. But even if it was  
 23 followed within its terms, the magnitude of storage in  
 24 Annexure E should be thought about in those terms.  
 25 SIR DANIEL: Mr Chairman, that's probably correct, and

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16:32 1 we'll reflect further on whether that captures our  
 2 thinking about it as well. But from what you say, and  
 3 as I think about it here on my feet, that's probably  
 4 correct. But I'd make a number of observations.  
 5 The first observation is that India is getting  
 6 an enormous amount of water from the Western Rivers,  
 7 including the Eastern Rivers, when it's impounding that  
 8 volume of water in the storage works.  
 9 Second, you've heard from us quite a lot, I think in  
 10 particular from Dr Morris, our concern that if the  
 11 methodology of Professor Lafitte somehow takes root,  
 12 we will then find that run-of-river HEPs are impounding  
 13 more water in their pondage pools than storage dams may  
 14 be impounding behind their works. And it may be that  
 15 you then have to redo the calculation that you've done;  
 16 I'm not entirely sure.  
 17 But certainly -- and this comes to our point about  
 18 pondage -- and I know, Mr Minear, I think you were  
 19 addressing this question to Dr Miles, and I appreciate  
 20 that it was, if you like, a kind of throw-away  
 21 observation and you covered it very quickly by saying  
 22 that Pakistan is making its case -- but I think the  
 23 words that you used were something along the lines of  
 24 you consider that Pakistan is making a very stringent  
 25 case in terms of the volume of pondage that India is

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16:34 1 permitted to have. And if memory serves me, Dr Miles  
 2 said, well, that's what's agreed in the Treaty, and  
 3 we think that obviously our interpretation is  
 4 Treaty-compliant.  
 5 But when I then come back to the calculation of  
 6 pondage, if you are with us that pondage is to be  
 7 calculated in respect of run-of-river HEPs in  
 8 a restrictive way, precisely because India has lots of  
 9 other avenues to impound water -- in its storage dams;  
 10 it can build run-of-river dams wherever it wishes to, as  
 11 long as they are Treaty-compliant -- India has quite  
 12 a latitude in respect of the waters of the Western  
 13 Rivers. We have no latitude whatsoever in respect of  
 14 the waters of the Eastern Rivers.  
 15 And we do urge you that when you come to look at  
 16 the hydro bargain, that you do keep very much in the  
 17 forefront of your minds the Treaty bargain and the peace  
 18 bargain. Because you may very well feel, absent the  
 19 Treaty bargain and the peace bargain, that you would  
 20 like to tinker a little bit here and there with the  
 21 hydro bargain to give India just a little bit more  
 22 pondage, because they deserve a little bit more pondage  
 23 to run their run-of-river HEPs. But frankly, that will  
 24 tear asunder the Treaty bargain. So we really do urge  
 25 you to keep the Treaty bargain absolutely at the

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16:37 1 just take the Indus -- 1 July to 20 August. So once  
 2 I've filled the dam, even though there's plenty of water  
 3 in the river for me to be able to operate over  
 4 an operating range -- and I just want to understand --  
 5 am I now restricted to -- once I've drawn it down, for  
 6 whatever purpose, to support a run-of-river set of HEPs,  
 7 I can't refill it at all?  
 8 SIR DANIEL: Well, I think that that will take you to  
 9 paragraph 21(b), which is the operation of the power  
 10 plant that's associated with the storage work. And  
 11 it says:  
 12 "... except during the period in which a filling is  
 13 carried out in accordance with the provisions of  
 14 Paragraph 18 or 19, the volume of water delivered into  
 15 the river below the work during any period of seven  
 16 consecutive days shall not be less than the volume of  
 17 water received in the river upstream ... in that  
 18 seven-day period."  
 19 Now you will have in your mind that this provision  
 20 is somewhat analogous to paragraph 15 of Annexure D;  
 21 but you'll also recall that paragraph 15 of Annexure D  
 22 provides the flexibility to vary the flow in any  
 23 seven-day period between 30% and 130%. Here there isn't  
 24 such a restriction: it's just a seven-day restriction.  
 25 DR BLACKMORE: Yes. So once you start to release the volume

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16:36 1 forefront of your minds as well.  
 2 Dr Blackmore.  
 3 THE CHAIRMAN: Dr Blackmore.  
 4 DR BLACKMORE: Just an observation first and then  
 5 a question.  
 6 So the observation was that with the storage dams,  
 7 we're worried about releasing water once we've stored  
 8 it. But the converse is true too, and that is that once  
 9 you've emptied them in the dry season, they do provide  
 10 a fair bucket of opportunity to store water and extend  
 11 the period of low flow or no flow passing down those  
 12 rivers. So both sides of that equation.  
 13 SIR DANIEL: Dr Blackmore, perhaps I could just sort of  
 14 intercede there, because that's obviously a hugely  
 15 important point. And that will depend on India's  
 16 compliance with its Treaty obligations, because filling  
 17 of those storage dams is limited, under the Treaty, to  
 18 those summer months.  
 19 Apologies for interrupting you.  
 20 DR BLACKMORE: No, no, that's okay.  
 21 That's the question I was coming to, which was,  
 22 under clause 18 of Annexure E, we've got these time  
 23 periods to fill. So I just want to understand some more  
 24 information.  
 25 So we go to fill the dam, and we have to do it --

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16:38 1 to support whatever you've got downstream, within the  
 2 seven-day rule, you are still reducing, basically: you  
 3 can't recoup to full supply level?  
 4 SIR DANIEL: If you're complying with the Treaty, yes.  
 5 DR BLACKMORE: If you're complying with the Treaty.  
 6 SIR DANIEL: Yes.  
 7 DR BLACKMORE: We'll get to how you understand where that  
 8 information comes from another time. But okay, thank  
 9 you.  
 10 SIR DANIEL: Your closing comment is obviously very  
 11 important because it goes to the wider issues about  
 12 information. And Article VI of the Treaty, which  
 13 I referred you to yesterday, provides for exchange of  
 14 data particularly with regards to the hydrology of the  
 15 rivers and the use of the waters of those rivers.  
 16 DR BLACKMORE: So I was looking at this the other day and  
 17 saying: well, okay, technology has not been static.  
 18 There's provisions of the Treaty that are static,  
 19 because they were written to set things at a point of  
 20 time. But the technology of data transfer, remote  
 21 sensing, a whole heap of others, are really not bounded  
 22 by the geographical national boundaries now. If you  
 23 want to find something out, my organisation could  
 24 reproduce the hydrology of Africa without ever going to  
 25 Africa, right? So all of that is possible now.

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16:40 1 I'm just wondering, when you look at this and you're  
 2 looking at the way Treaty compliance is informed by  
 3 getting information, whether anything that's happened  
 4 within the Commission to modernise the automatic  
 5 transfer of information, whether that's a real  
 6 possibility or it's just not being considered at the  
 7 moment.  
 8 SIR DANIEL: Dr Blackmore, let me give you an initial  
 9 response, a holding response. It may be that we can  
 10 come back to that if there are post-hearing submissions.  
 11 But you've heard quite a lot, both from the  
 12 Commissioner in his evidence and also more generally,  
 13 that in fact this information-sharing requirement of the  
 14 Treaty has essentially stalled. I mean, it stalled at  
 15 the level of provision of information; it stalled at the  
 16 level of requests for tours of inspection so that  
 17 Pakistan can go and get the information itself.  
 18 You saw most recently in the submissions that I made  
 19 to you yesterday about compliance with the Kishenganga  
 20 award, and what information Pakistan has on the flow of  
 21 the Kishenganga-Neelum River as it enters Pakistan, that  
 22 there is some limited information, but just for a period  
 23 of two or three years.  
 24 So I suspect that there is a very big challenge that  
 25 Pakistan faces here. You will also recall that the

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16:41 1 Commissioner said that on occasion, Pakistan has to  
 2 resort to trying to get access to websites of the Indian  
 3 CWC or elsewhere, and sometimes it's just not able to.  
 4 So there is a very big challenge, I think, when it comes  
 5 to information acquisition.  
 6 THE CHAIRMAN: We are getting low on time, but I don't want  
 7 to cut you off.  
 8 I don't think we have any questions for you,  
 9 Sir Daniel, so please proceed.  
 10 SIR DANIEL: Thank you, Mr Chairman. I am going to go  
 11 perhaps a little bit faster on my next part, because I'm  
 12 about halfway through, but about three quarters of the  
 13 way through my time. But I think the issues I'm going  
 14 to come on to address you've heard me on before, so  
 15 I may just be giving you the outline of it.  
 16 Mr Chairman, may I just clarify: I believe that the  
 17 guillotine comes down at 5.15, if that's correct? And  
 18 I need to allow 15-20 minutes or so for Mr Murtaza. So  
 19 I have about 15-20 minutes or so of my time remaining.  
 20 So I'd like then to turn to questions 7(a) and (b),  
 21 which is the issues relating to the competence of the  
 22 Neutral Expert.  
 23 You raised two questions there. Question 7(a):  
 24 "In the event that a party considers that a neutral  
 25 expert has exceeded his competence:

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16:43 1 (a) How, procedurally, could a party 'appeal' or  
 2 challenge that decision before a Court of Arbitration?  
 3 Is there any time limit to such challenge and, if so,  
 4 from where does [that] limit arise?"  
 5 You will find elements of this response at the  
 6 following transcript references: Day 1, page 41, line 23  
 7 to page 51, line 9 and page 51, line 21 to page 58,  
 8 line 23; Day 3, page 180, line 1 to page 181, line 3.  
 9 And then question 7(b):  
 10 "If a party elects not to raise the issue of  
 11 a neutral expert exceeding his/her competence with  
 12 a Court of Arbitration, do the matters on which the  
 13 neutral expert potentially exceeded his competence  
 14 become binding on a Court of Arbitration (i) with  
 15 respect to issues concerning the plant in respect of  
 16 which the neutral expert decision was rendered; or (ii)  
 17 more generally?"  
 18 You'll find elements of the response to this at  
 19 transcript Day 3, page 180, lines 1-10, and page 182,  
 20 lines 5-16.  
 21 And I have to say, much of what I will say now in  
 22 an abbreviated form has already been said. So this is  
 23 really pulling the threads together and trying to  
 24 package them in a more coherent fashion. And in the  
 25 interests of time, I won't actually take you to the

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16:44 1 detail of the provisions, but just cite them.  
 2 First of all, the Treaty addresses the competence of  
 3 both the Court of Arbitration and the Neutral Expert.  
 4 And the framing provision is Article IX, paragraph (1),  
 5 which talks about:  
 6 "Any question which arises between the Parties  
 7 concerning the interpretation or application ... or the  
 8 existence of [a] fact which, if established, might  
 9 constitute a breach of [the] Treaty ..."  
 10 So that's the gateway for the competence provision.  
 11 The competence of the Neutral Expert is then  
 12 addressed in Article IX, paragraph (2)(a) and in Part 1  
 13 of Annexure F. You know these provisions well from the  
 14 Competence Award. There's a long list, I think of  
 15 23 subparagraphs, but it's very tightly limited.  
 16 In contrast, the competence of the Court of  
 17 Arbitration is addressed in Article IX,  
 18 paragraph (2)(b): any other difference that may arise,  
 19 or if a Neutral Expert so determines that a matter is  
 20 not within his competence.  
 21 Now the Court of Arbitration's competence is hinged  
 22 on Article IX(1) and the proper observance of the  
 23 relevant procedural conditions. So the competence of  
 24 a Court of Arbitration, if it's properly constituted,  
 25 *ratione materiae*, is essentially very broad indeed: to

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16:46 1 the four corners of the Treaty. You obviously can't  
 2 assert your competence in respect of matters that fall  
 3 outside of the Treaty, demonstrably so, but otherwise  
 4 your competence extends to the four corners of the  
 5 Treaty.  
 6 We then come to a number of other provisions.  
 7 Article IX(6) is important because that provides that  
 8 the relevant gateway provisions to the Court are closed  
 9 "while [any difference] is being dealt with by a Neutral  
 10 Expert". And again, these are provisions that you're  
 11 familiar with from the Competence Award.  
 12 And I note that the word "while" is important,  
 13 because it provides a purely temporal limitation in  
 14 Article IX(6). But that has to be read in the light of  
 15 other provisions of the Treaty, notably paragraph 11 of  
 16 Annexure F, which provides that:  
 17 "The decision of the Neutral Expert on all matters  
 18 within his competence shall be final and binding, in  
 19 respect of the particular matters on which decision is  
 20 made, including ... upon any Court of Arbitration ..."  
 21 Paragraph 7 of Annexure F then addresses the  
 22 procedure for a competence determination by the Neutral  
 23 Expert. And I would contrast the formulation of  
 24 paragraph 7 with the formulation of paragraph 16 of  
 25 Annexure G. That's the formulation that drives you,

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16:49 1 "Questions arising under the provisions of ...  
 2 Paragraph 11 ... of Annexure D."  
 3 I hope this will be clearer when it comes to the  
 4 transcript, rather than just when I speak it.  
 5 But paragraph 11 of Annexure D then talks about:  
 6 "If a question arises as to whether or not the  
 7 design of a Plant conforms to the criteria set out in  
 8 Paragraph 8, then either Party may proceed to have the  
 9 question resolved in accordance with the provisions of  
 10 Article IX(1) and (2)."  
 11 And I add that nothing in Part 1 of Annexure F, that  
 12 deals with the competence of the Neutral Expert,  
 13 encompasses systemic questions of legal interpretation.  
 14 So this brings us to paragraph 13 of Annexure F:  
 15 "Without prejudice to the finality of the Neutral  
 16 Expert's decision, if any question ... which is not  
 17 within the competence of the Neutral Expert should arise  
 18 out of his decision, that question shall, if it cannot  
 19 be resolved by agreement, be settled in accordance with  
 20 the provisions of Article IX (3), (4) and (5)."  
 21 So we say that if a Neutral Expert exceeds his or  
 22 her competence, this necessarily engages paragraph 13 of  
 23 Annexure F. Because even at a most basic level, the  
 24 application of a Neutral Expert's determination will  
 25 give rise to questions that go beyond the competence of

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16:47 1 because paragraph 16 of Annexure G is effectively  
 2 a compétence de la compétence provision: you have the  
 3 competence to determine your competence. The Neutral  
 4 Expert has the competence to determine whether a matter  
 5 is within the framework of Annexure F, Part 1.  
 6 And there is an evident reason for the different  
 7 approach to the competence question for the Court and  
 8 for the Neutral Expert, and that is that the competence  
 9 *ratione materiae*, the material competence, of the  
 10 Neutral Expert is very heavily and very presumptively  
 11 limited, whereas the material competence of the Court of  
 12 Arbitration is not presumptively limited as long as it's  
 13 within the scope of Article IX, paragraph (1).  
 14 And one might anticipate that the determination of  
 15 competence is likely to become very quickly heavily  
 16 legal and contextual, a matter which a Court of  
 17 Arbitration will be well placed to address because it  
 18 will include certainly, at a very minimum, a number of  
 19 lawyers; rather than for a Neutral Expert, whose task is  
 20 focused on the construction of engineering issues.  
 21 So we then turn to the scheme and scope of the  
 22 Neutral Expert's competence *ratione materiae*. And if  
 23 we take our case from the public information as  
 24 a yardstick, paragraph 1(11) of Annexure F -- I took you  
 25 to this on the very first day -- addresses:

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16:50 1 the Neutral Expert. So we see paragraph 13 as  
 2 a gateway.  
 3 We also say that in the unusual circumstances of  
 4 this case, in which the Court has affirmed its  
 5 competence over the entirety of the dispute addressed in  
 6 Pakistan's Request for Arbitration, if a question arises  
 7 that is beyond the competence of the current Neutral  
 8 Expert, it is presumptively within the competence of  
 9 this Court. Now that may require you to address, as  
 10 a preliminary matter, whether the question was indeed  
 11 within the competence of the Neutral Expert.  
 12 This brings me to your questions.  
 13 On question 7(a), there are two journeys to address,  
 14 but this can be done succinctly. This was the question  
 15 of:  
 16 "In the event that a party considers that a neutral  
 17 expert has exceeded his competence:  
 18 (a) How, procedurally, could a party 'appeal' ...?"  
 19 So there are two journeys to address.  
 20 In the abstract -- so away from the details of this  
 21 case -- a challenge would have to go back to the  
 22 Commission and work its way through the Article IX  
 23 process.  
 24 In our case, we consider that a challenge could  
 25 properly be raised with you in the form of a request

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16:51 1 concerning the application of the decision of the  
 2 Neutral Expert, and that this would inevitably require  
 3 you to address both the issue of the Neutral Expert's  
 4 competence and the substance of his decision.  
 5 Then question 7(b) raises the issue of, if there is  
 6 a failure to challenge any decision, can that or should  
 7 that be construed as acquiescence or, in legal parlance,  
 8 as an estoppel, precluding the issue being raised  
 9 subsequently, and in respect of what issues?  
 10 We accept that if, after the passage of a reasonable  
 11 period, a party has or may reasonably be deemed to have  
 12 a claimed basis for challenge, and that party does not  
 13 pursue it, that will stand against the dilatory party.  
 14 In the absence of specific rules addressing timing,  
 15 principles of reasonable appreciation and acquiescence  
 16 or estoppel will operate, and we consider that the test  
 17 will properly be one of a reasonable period. I don't  
 18 think that we can put any more flesh on that.  
 19 The consequence of this, though, would be that the  
 20 issue of the Neutral Expert's competence would become  
 21 binding on the Court, unless there was a Court that was  
 22 already established and seised of the issues, as in your  
 23 case, which concluded that it was entitled to raise  
 24 a question of the competence of the Neutral Expert  
 25 proprio motu, of its own motion.

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16:54 1 plant-specific determination, somehow applies more  
 2 generally.  
 3 So I think that's all that I will say on that. And  
 4 I will move rapidly on, unless you have any other  
 5 questions.  
 6 THE CHAIRMAN: No questions, Sir Daniel. Please proceed.  
 7 SIR DANIEL: Thank you, Mr Chairman.  
 8 Mr Chairman, I was going to turn -- and with  
 9 apologies and embarrassment, because this is a question  
 10 that you put, not part of the written questions -- but  
 11 I was going to come to the five sequential steps for  
 12 applying sources of law or practice that you put on  
 13 Day 3.  
 14 We have lots of transcript references. If it would  
 15 assist, the court reporter does have all the transcript  
 16 references, because he has a text just to assist him.  
 17 I'm not going to read those into the record; it would  
 18 take me a little bit too long. I will just make  
 19 a number of telegraphic points about this, so that I can  
 20 come to some very succinct concluding remarks that  
 21 I would like to make.  
 22 [Transcript references:  
 23 Day 1, page 72, line 6 to page 78, line 9; page 77,  
 24 line 18 to page 78, line 9; page 93, line 12 to page 94,  
 25 line 20; page 94, line 21 to page 95, line 10.]

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16:53 1 So, in the present proceedings, it may not only be  
 2 a matter for us to raise a question of the competence of  
 3 the Neutral Expert. You may feel that you are entitled  
 4 to do so as well. I make no other point about that.  
 5 Last point on this. The acquiescence that would  
 6 bind the dilatory party would attach to the Neutral  
 7 Expert's competence decision and to his or her  
 8 plant-specific determination, but it would not and it  
 9 could not in some way turbocharge the plant-specific  
 10 determination so as to widen its scope of application  
 11 beyond the plant in question. In other words, a failure  
 12 to challenge the Neutral Expert's competence could not  
 13 result in that competence becoming greater than it would  
 14 otherwise be under the Treaty.  
 15 And to take the Baglihar example as the hard  
 16 example, the fact that Pakistan did not challenge the  
 17 competence of the Neutral Expert under paragraph 13,  
 18 following the Baglihar case, stands against Pakistan.  
 19 It cannot now reopen the Baglihar case through  
 20 a competence challenge under paragraph 13.  
 21 The Baglihar determination by Professor Lafitte  
 22 applies to the Baglihar plant, and we've accepted that  
 23 throughout. But that's not to say that the Baglihar  
 24 determination somehow becomes larger than life, and that  
 25 the analysis that drove his interpretation, the

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16:56 1 Day 2, page 85, line 22 to page 86, line 18;  
 2 page 92, line 17 to page 94, line 7; page 107, line 15  
 3 to page 113, line 7; page 118, line 13 to page 120,  
 4 line 11; page 121, line 25 to page 123, line 2.  
 5 Day 3, page 211, line 24 to page 219, line 13;  
 6 page 223, lines 6-19.  
 7 Day 4, page 108, line 20 to page 110, line 4;  
 8 page 125, line 5 to page 126, line 2; page 128, line 12  
 9 to page 129, line 4; page 147, lines 4-12; page 166,  
 10 line 12 to page 168, line 23.  
 11 Day 5, page 148, line 22 to page 149, line 9;  
 12 page 262, line 5 to page 264, line 11.]  
 13 On your first step, Mr Chairman -- and you will find  
 14 the question at Day 3, page 221, line 7 to page 222,  
 15 line 22 -- we agree with your first step. I won't say  
 16 anything more about it. There's a little bit perhaps  
 17 more to unpack, but we agree broadly with that.  
 18 On your second step, which deals with:  
 19 "... [the] Treaty requirements sometimes allow for  
 20 construction of a hydroelectric plant on the Western  
 21 Rivers by India by reference to design or customary  
 22 accepted practice ... But this will often depend on  
 23 a plant-by-plant analysis, such as the materials you  
 24 would use to construct a spillway gate, or something  
 25 like that."

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16:56 1 Once again, we agree with that approach, and that  
 2 approach in the sequence, and Professor Webb addressed  
 3 that in her submissions.  
 4 Third, you addressed that:  
 5 "... it's possible for Treaty rights and obligations  
 6 to be informed by, but not negated by, customary  
 7 international law."  
 8 And you referenced the Kishenganga Court approach.  
 9 Mr Chairman, we agree with this as a general  
 10 proposition, but we consider that this proposition needs  
 11 to be qualified. Because we consider that the threshold  
 12 for the incorporation of customary international law,  
 13 set out in paragraph 29 of Annexure G, is controlling,  
 14 and that the language used in paragraph 29 of Annexure G  
 15 talks about resort to customary international law when  
 16 this is "necessary" for purposes of interpretation or  
 17 application, but "only to the extent necessary".  
 18 We consider that the approach taken by the  
 19 Kishenganga Court in paragraph 112 of its final award is  
 20 the correct approach with regard to that issue. We  
 21 consider that there would be a risk in enlarging the  
 22 concept of resort to customary international law beyond  
 23 the framework of that paragraph.  
 24 Then, Mr Chairman, with regards to your fourth and  
 25 fifth points in the sequence, both of which we agree

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17:00 1 Fourth, there will always be engineering  
 2 workarounds, if there has been a reasonable choice of  
 3 site.  
 4 Fifth, India is obliged to share information with  
 5 Pakistan as soon as its plan to construct a run-of-river  
 6 HEP can be said to have crystallised under  
 7 Article VII(2). And to correct a misspeak from  
 8 yesterday on my part, we say that this is no later than  
 9 the draft engineering design stage; not the end of the  
 10 process but the beginning of the process.  
 11 Sixth, the calculation of pondage under  
 12 paragraph 8(c) of Annexure D is driven by the hydrology  
 13 of the river.  
 14 Seventh, the calculation of pondage cannot be driven  
 15 either by the installed capacity of the proposed HEP or  
 16 by the proposed contribution of that HEP to the load, as  
 17 this would leave the matter entirely to India's  
 18 discretion.  
 19 And eighth, pondage in Annexure D can only be used  
 20 for power generation. It cannot be used for other  
 21 purposes, such as agricultural use. This follows from  
 22 the definition of "Pondage" in paragraph 2(c) of  
 23 Annexure D.  
 24 Mr Chairman, members of the Court, that concludes my  
 25 submissions.

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16:58 1 with, but both of which we also consider -- as you  
 2 yourself addressed -- we consider that they don't come  
 3 within the scope of the Treaty because they really talk  
 4 about having regard to standards that are found in  
 5 customary international law or in other instruments.  
 6 So, Mr Chairman, with apologies for not doing more  
 7 justice on my feet to those questions, I then turn to my  
 8 concluding observations. And I will just be another  
 9 two minutes, in case Mr Murtaza is getting anxious that  
 10 he will have to speak as fast as I'm speaking now.  
 11 So my concluding observations.  
 12 Mr Chairman, members of the Court, I'd like just to  
 13 conclude by recalling eight points from our submissions  
 14 over the past seven days. And they are very briefly  
 15 stated.  
 16 First, sediment management will be or should be  
 17 a driving imperative in the design of a run-of-river  
 18 hydroelectric plant in the Himalaya. You heard this  
 19 from Dr Morris in full detail.  
 20 Second, there will inevitably be a choice of site.  
 21 Third, India has to locate its Western Rivers  
 22 run-of-river HEPs at sites that will enable it to comply  
 23 with its Treaty obligations, including with respect to  
 24 the mandatory design criteria, for example, in  
 25 paragraphs 8(d), (e) and (f) of Annexure D.

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17:01 1 I had some thanks to make. I know that Mr Murtaza  
 2 will make his own thanks. Perhaps when I come back to  
 3 deal with the housekeeping issues, I will record the  
 4 thanks on the part of the counsel team who have been  
 5 standing at this microphone for the last seven days.  
 6 But subject to any questions you may have, that  
 7 concludes my submissions.  
 8 THE CHAIRMAN: Thank you, Sir Daniel. I don't think we do  
 9 have any questions, so thank you very much for your  
 10 concluding observations.  
 11 I invite to the podium now Mr Murtaza for his final  
 12 submissions. And while he's coming to the podium,  
 13 I will note that the Court is prepared to sit as long as  
 14 it requires for Mr Murtaza to make his remarks. So  
 15 please don't rush yourself; take the time that you need.  
 16 We very much look forward to hearing from you.  
 17 (5.02 pm)  
 18 Final submissions on behalf of  
 19 the Islamic Republic of Pakistan  
 20 MR MURTAZA: Mr Chairman, members of the Court, I'm the  
 21 Secretary of the Ministry of Water Resources, Government  
 22 of Pakistan, which is the ministry of the Government  
 23 that has primary responsibility for Indus Waters issues.  
 24 I am honoured to be here today to close Pakistan's  
 25 case, and only regret that, for reasons of my

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17:02 1 governmental responsibilities, I have not been able to  
 2 be here throughout the hearing.  
 3 I will shortly, as a matter of formality, read  
 4 Pakistan's final submissions, which I understand  
 5 Sir Daniel Bethlehem, Pakistan's lead counsel, took you  
 6 through on Friday. They are essentially unchanged from  
 7 Pakistan's Memorial, but for updating to take account of  
 8 the hearing and any post-hearing submissions that you  
 9 may direct.  
 10 Before I turn to this task, however, let me make one  
 11 or two brief observations that are appropriately stated  
 12 by a senior Pakistani government official.  
 13 The Indus Waters Treaty stands as a cornerstone in  
 14 Pakistan-India relations. It divided the waters of the  
 15 Indus Basin between us after a challenging period. And  
 16 for the first time, it gave Pakistan water security on  
 17 the basis of an international treaty in which both  
 18 parties had a stake.  
 19 As the lower riparian, but the home to the largest  
 20 area -- by some margin -- of the Indus Basin, Pakistan  
 21 was acutely vulnerable from its earliest days. Ensuring  
 22 respect for the terms of Treaty is of paramount  
 23 importance to Pakistan, and we put our faith in the  
 24 Treaty's dispute settlement mechanisms.  
 25 This is why, notwithstanding our warranted criticism

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17:03 1 of India's conduct that brought us to the point of two  
 2 parallel settlement mechanisms, we have resolved to  
 3 participate in both proceedings. The first is the  
 4 proceedings before you, which Pakistan commenced in good  
 5 faith with a view to addressing and resolving  
 6 a long-festering dispute over the interpretation and  
 7 application of the Treaty, of both systemic and  
 8 plant-specific focus. The second is the proceeding  
 9 which India purported to commence before the Neutral  
 10 Expert as a spoiling tactic to derail Pakistan's case  
 11 before the Court.  
 12 Subject to issues of the Neutral Expert's  
 13 competence, which remain to be addressed, despite its  
 14 misgivings, Pakistan has resolved to participate in that  
 15 process for the simple reason that it believes in the  
 16 Treaty and hopes to believe that India may also become  
 17 a purposeful partner under the Treaty. Pakistan will  
 18 live with the outcome of your award, as it will with the  
 19 outcome of the Neutral Expert determination, exercised  
 20 within his ostensible competence. This remains to be  
 21 determined and, as Pakistan's counsel have informed you,  
 22 Pakistan retains a caveat in respect of the competence  
 23 of the Neutral Expert.  
 24 We are invested in the Treaty because it is -- or it  
 25 should be -- a pillar of stability in the relationship

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17:04 1 between the two states. We are invested in it because  
 2 it apportions the water of the Indus Basin, on which  
 3 Pakistan depends, and promises us security. We are  
 4 invested in it because if we were to look to address  
 5 with our neighbour issues that arise beyond the  
 6 Treaty -- the challenges of climate change, innovations  
 7 in water security and more -- we must do so from  
 8 a foundation of stability, respecting what has been  
 9 agreed in the past.  
 10 As you heard from Pakistan's counsel, Pakistan is  
 11 concerned that India makes little effort to comply with  
 12 its obligations under the Treaty. It presents Pakistan  
 13 with template HEP designs that could have been prepared  
 14 for a hydroelectric plant to be constructed on any river  
 15 anywhere in India, without regard to India's Treaty  
 16 commitments to Pakistan. It has refused Pakistan's  
 17 access to HEP sites by way of tours of inspection. It  
 18 has been wanting in the sharing of information.  
 19 Mr Chairman, members of the Court, Pakistan has  
 20 turned to you to address the issue of systemic  
 21 interpretation of the Treaty in the hope not simply that  
 22 you will endorse Pakistan's understanding of how the  
 23 Treaty works, but that, by clarifying once and for all  
 24 the meaning of key provisions of the Treaty, you will  
 25 bring about a return to legality under the Treaty.

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17:06 1 Mr Chairman, members of the Court, with this said,  
 2 I will turn to read out formally Pakistan's final  
 3 submissions. These will thereafter be transmitted to  
 4 the registry under the signature of Pakistan's Deputy  
 5 Agent.  
 6 Final submissions.  
 7 Having regard to the submissions advanced and  
 8 evidence adduced in the Memorial, and to the submissions  
 9 advanced and evidence adduced during the hearing, and to  
 10 any submissions that may be advanced and evidence  
 11 adduced in any post-hearing submissions that may be  
 12 directed by the Court, Pakistan respectfully requests  
 13 the Court in one or more partial awards:  
 14 (A) To set out its findings on the issues engaged by  
 15 this first phase on the merits of the proceedings in  
 16 a narrative dispositif that elaborates in detail, and in  
 17 prescriptive terms, the overall interpretation and  
 18 application of Article III and paragraph 8 of the  
 19 Treaty; and, in particular, what is required for  
 20 purposes of compliance with the design criteria of  
 21 paragraph 8 of Annexure D, and other relevant and  
 22 related provisions of the Treaty;  
 23 (B) Having regard to the facts, evidence and law  
 24 adduced in the Memorial and its associated appendices  
 25 and accompanying exhibits and annexes, in the hearing

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17:07 1 and its accompanying exhibits and annexes, and in any  
 2 post-hearing submissions that may be directed by the  
 3 Court to adjudge and declare:  
 4 (i) the nature and character of the Treaty, and the  
 5 bargains reflected in the Treaty in terms addressed in  
 6 chapter 7 of, and elsewhere in, the Memorial, in the  
 7 hearing and in any post-hearing submissions that may be  
 8 directed by the Court;  
 9 (ii) the binding or otherwise controlling effect of  
 10 the decisions of past dispute resolution bodies in terms  
 11 addressed in chapter 8 of, and elsewhere in, the  
 12 Memorial, in the hearing, and in any post-hearing  
 13 submissions that may be directed by the Court with  
 14 respect to:  
 15 (a) the parties;  
 16 (b) the present proceedings before the Court;  
 17 (c) the present proceedings before the Neutral  
 18 Expert; and  
 19 (d) future proceedings before a Court of Arbitration  
 20 or a Neutral Expert;  
 21 (iii) the relationship, for interpretative purposes,  
 22 between (a) the headline obligations contained in  
 23 Article III(1), the chapeau to Article III(2) and  
 24 Article III(4) of the Treaty, and (b) the exception  
 25 thereto contained in Article III(2)(d) and Part 3 of

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17:09 1 for an Annexure D.3 HEP in terms addressed in chapter 10  
 2 of, and elsewhere in, the Memorial, in the hearing, and  
 3 in any post-hearing submissions that may be directed by  
 4 the Court;  
 5 (vii) with respect to the interpretation and  
 6 application of paragraph 8(f) of Annexure D of the  
 7 Treaty, what is to be taken into account, and what is to  
 8 be excluded, for purposes of designing power intakes for  
 9 an Annexure D.3 HEP in terms addressed in chapter 10 of,  
 10 and elsewhere in, the Memorial, in the hearing, and in  
 11 any post-hearing submissions that may be directed by the  
 12 Court;  
 13 (viii) with respect to the interpretation and  
 14 application of paragraph 8(c) of Annexure D of the  
 15 Treaty, what is to be taken into account, and what is to  
 16 be excluded, for purposes of calculating maximum pondage  
 17 for an Annexure D.3 HEP in terms addressed in chapter 11  
 18 of, and elsewhere in, the Memorial, in the hearing, and  
 19 in any post-hearing submissions that may be directed by  
 20 the Court.  
 21 (ix) with respect to the interpretation and  
 22 application of paragraph 8(a) of Annexure D of the  
 23 Treaty, what is to be taken into account, and what is to  
 24 be excluded, for purposes of designing the freeboard for  
 25 an Annexure D.4 HEP in terms addressed in chapter 12 of,

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17:08 1 Annexure D, in terms addressed in chapters 8 and 9 of,  
 2 and elsewhere in, the Memorial, in the hearing, and in  
 3 any post-hearing submissions that may be directed by the  
 4 Court;  
 5 (iv) that engineering "best practices" can and must  
 6 be used for the purposes of complying with the design  
 7 criteria and operational constraints in Part 3 of  
 8 Annexure D of the Treaty, but that "best practices"  
 9 cannot be relied upon to circumvent the requirements of  
 10 the Treaty, in terms addressed in chapter 9 of, and  
 11 elsewhere in, the Memorial, in the hearing, and in any  
 12 post-hearing submissions that may be directed by the  
 13 Court;  
 14 (v) with respect to the interpretation and  
 15 application of paragraph 8(d) of Annexure D of the  
 16 Treaty, what is to be taken into account, and what is to  
 17 be excluded, for purposes of designing low-level  
 18 sediment and other outlets for an Annexure D.3 HEP in  
 19 terms addressed in chapter 10 of, and elsewhere in, the  
 20 Memorial, in the hearing, and in any post-hearing  
 21 submissions that may be directed by the Court;  
 22 (vi) with respect to the interpretation and  
 23 application of paragraph 8(e) of Annexure D of the  
 24 Treaty, what is to be taken into account, and what is to  
 25 be excluded, for purposes of designing gated spillways

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17:10 1 and elsewhere in, the Memorial, in the hearing, and in  
 2 any post-hearing submissions that may be directed by the  
 3 Court;  
 4 (x) any other findings as the Court may consider to  
 5 be necessary or warranted for purposes of providing  
 6 controlling guidance on the interpretation and  
 7 application of, and relationship between:  
 8 (a) Article III of the Treaty;  
 9 (b) Paragraph 8(a) of Annexure D of the Treaty;  
 10 (c) Paragraph 8(c) of Annexure D of the Treaty;  
 11 (d) Paragraph 8(d) of Annexure D of the Treaty;  
 12 (e) Paragraph 8(e) of Annexure D of the Treaty;  
 13 (f) Paragraph 8(f) of Annexure D of the Treaty; and  
 14 (xi) Such other findings as the Court may consider  
 15 to be necessary or warranted.  
 16 (2) Pakistan further requests the Court:  
 17 A. To convene a case management conference of the  
 18 parties for purposes of considering:  
 19 (i) the status of the parallel proceedings before  
 20 the Neutral Expert;  
 21 (ii) what engagement, if any, the Court should  
 22 undertake with respect to the Neutral Expert and his  
 23 proceedings, having regard in particular to the general  
 24 duty of mutual respect and comity applicable to both the  
 25 proceedings before the Court and the proceedings before

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17:11 1 the Neutral Expert;  
 2 (iii) the need for directions for the conduct of  
 3 further phases of these proceedings;  
 4 B. To give such directions as may be necessary and  
 5 warranted for the scheduling and conduct of further  
 6 phases of the proceedings before the Court;  
 7 C. To reserve any issues of costs in respect of the  
 8 present phase of the proceedings for decision by the  
 9 Court in due course;  
 10 D. To remain seised of the dispute.  
 11 Mr Chairman, members of the Court, it remains only  
 12 for me to express the thanks and appreciation of the  
 13 Islamic Republic of Pakistan to you, Mr Chairman, and  
 14 the members of the Court for your expeditious engagement  
 15 on the issues presented to you for decision. We  
 16 appreciate the courtesy and kindness you have shown to  
 17 Pakistan's representation here in The Hague, and the  
 18 rigorous scrutiny with which you have and will be  
 19 addressing our submissions.  
 20 I would also like to express my thanks, and that of  
 21 my Government, to the Registry, the Permanent Court of  
 22 Arbitration: to Mr Schofield, Mr Williams, Mr King and  
 23 Ms Blink, and all the PCA staff who have contributed to  
 24 welcoming us to the Peace Palace and have facilitated  
 25 our work here over the past ten days.

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17:14 1 Did you have some opening thoughts of your own, or  
 2 were you hoping that I would jump in?  
 3 SIR DANIEL: Absolutely hoping that you would jump in.  
 4 THE CHAIRMAN: In that case, I have about, I don't know,  
 5 five or six things that I think we probably should  
 6 discuss a little bit.  
 7 The first is that, as you know, pursuant to  
 8 Procedural Order 11, there is a production of documents  
 9 process that we have unleashed. Some documents have  
 10 come in already from Pakistan: the Kishenganga  
 11 proceedings; many, most perhaps, of the Baglihar  
 12 proceedings, with a few bits and pieces more coming in  
 13 that regard. But then a series of categories that  
 14 I won't read out of other documents that, pursuant to  
 15 the Court's instruction, you are going to attempt to  
 16 compile and submit by September 30.  
 17 I think at the outset of this hearing, we noted that  
 18 there will be some relevance analysis that the counsel  
 19 for Pakistan will need to engage in, in sifting through  
 20 those documents. I suppose I would observe that in the  
 21 course of this hearing, issues arose that may help you  
 22 see some aspects of that relevance that perhaps were not  
 23 previously apparent.  
 24 Obviously there's an interest in pondage  
 25 calculations relating not just to the plants that we

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17:12 1 I would also like to express our thanks and  
 2 appreciation to Mr Trevor McGowan, the court reporter,  
 3 and to the sound and technical engineers who have  
 4 facilitated Pakistan's submissions over the past  
 5 ten days. We appreciate the professionalism and  
 6 personal engagement of them all.  
 7 Mr Chairman, members of the Court, it remains only  
 8 to wish you wisdom in the period to come, and safe  
 9 travels back to your home and loved ones.  
 10 Thank you.  
 11 THE CHAIRMAN: Thank you very much, Mr Murtaza.  
 12 And on behalf of the Court, let me assure you that  
 13 there should be no concerns about your inability to be  
 14 here throughout the hearing. We very much appreciate  
 15 your ability to be here today to provide both important  
 16 observations about the case and also to formally and  
 17 orally submit Pakistan's final submissions for this  
 18 phase of the hearing. We do look forward to receiving  
 19 the written form of the final submissions signed by the  
 20 Deputy Agent, but we really do appreciate your ability  
 21 to be here today.  
 22 So that brings us almost to the end of our process,  
 23 but I do think we have a few housekeeping matters that  
 24 we might take advantage of attending to. So,  
 25 Sir Daniel, perhaps we should embark on that.

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17:15 1 have typically been discussing but really across the  
 2 board. If, in the course of documents you're going  
 3 through, there are methods of calculation that have been  
 4 discussed and reacted to, all of those I think would be  
 5 of relevance to the Court as it tries to proceed with  
 6 the issues before it.  
 7 We've talked quite a bit about Annexure E. That  
 8 probably wasn't as much on your radar screen before as  
 9 it is now. It seems again that as you're going through  
 10 your document collection process, you might have an eye  
 11 to that.  
 12 And there may be other issues as well. I just  
 13 thought I would note that the hearing may be giving you  
 14 some greater insights into that process that you're  
 15 about to engage on.  
 16 The one additional aspect that I thought I would  
 17 raise with respect to Pakistan's document collection  
 18 process is that if it is the case you're doing  
 19 a relevance review, I'll call it, to sift out things  
 20 that are worth putting forward and things that really  
 21 aren't of great significance, if it's possible for  
 22 Pakistan to do some kind of index that would attempt to  
 23 indicate why particular documents are relevant, perhaps  
 24 even organising them into broad categories -- you know,  
 25 freeboard-related documents, and here's the ones that

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17:17 1 rose up in your mind in that regard; outlet documents.  
 2 We're not looking for any particular organisation of  
 3 an index in that regard. But if, in the process of  
 4 assessing on your own why particular documents are of  
 5 relevance, it's possible to generate something of that  
 6 kind, I do think the Court would find that helpful.  
 7 SIR DANIEL: Mr Chairman, perhaps I might just intercede  
 8 there.  
 9 Obviously, certainly for your purposes but also for  
 10 our purposes, we would want to try and do that. I do  
 11 note that with regard to very many of the documents that  
 12 we've already put before you, there are a number of  
 13 issues which are commingled in a single document. For  
 14 example, if it's a PIC report, it may be covering the  
 15 ground. So there may be an element where that becomes  
 16 a little bit artificial.  
 17 I don't think -- I certainly don't, but I don't  
 18 think that we yet have a sense of how many documents  
 19 there are, because we're still going through the process  
 20 of identifying the documents. There is then going to be  
 21 a need either to digitise them for purposes of our  
 22 review or for one or more members of the legal team in  
 23 fact to go out to Pakistan and undertake a review there.  
 24 But if it's going to be done here, but also for purposes  
 25 of providing documents to you, we're going to have to

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17:20 1 filing. It seems to me in our procedural order we could  
 2 certainly flag that as something that we would approve  
 3 if, after discussion as a Court, we've decided to  
 4 approve it. So that's one possibility. And another  
 5 would be to indicate the desire, if it proves feasible,  
 6 of an index relating to the documents broken down by  
 7 issues to which they relate.  
 8 SIR DANIEL: Thank you, Mr Chairman. I'm sure that any  
 9 further guidance that you can give would be welcome.  
 10 And we very much appreciate your approach, when  
 11 it comes to these procedural orders, to include those  
 12 concluding paragraphs with a latitude to apply. And if  
 13 there is anything in a procedural order which we  
 14 perceive will cause great burdens, then we will come  
 15 back to you on that.  
 16 But just perhaps two points to raise as you think  
 17 about that.  
 18 The first one is that you described the post-hearing  
 19 submission, under the cover of which the documents might  
 20 be submitted, as a post-hearing submission that would  
 21 "explain the process". There's also another issue,  
 22 because it may be that we discover documents which are  
 23 substantively material. So the question may then be:  
 24 would you wish the post-hearing submission to address  
 25 the substance of those documents, or would you expect us

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17:19 1 digitise those and collate those.  
 2 So I expect that it's going to be quite a big  
 3 exercise, and now especially that we are going to be  
 4 looking at Annexure E; and then we say that Annexure E  
 5 has got roots in Annexure C, so there may be all sorts  
 6 of questions. But that's precisely the purpose of  
 7 proposing that we submit under a post-hearing brief, so  
 8 that we can at least identify for you the task that we  
 9 have undertaken.  
 10 THE CHAIRMAN: Yes. And to the extent that you're not  
 11 entirely sure what's in the documents out there,  
 12 certainly the Court is also not at all aware, and  
 13 therefore this idea of some kind of index may or may not  
 14 prove fruitful in due course. I just wanted to flag  
 15 that as something that would be of interest if it was  
 16 easily generated, sensibly generated in the course of  
 17 the process.  
 18 I anticipate that we would probably issue  
 19 a procedural order after the hearing that would deal  
 20 with a few different issues, one of which could be this  
 21 procedural order document production process. We  
 22 already have Procedural Order 11, but it might be that  
 23 there is some value in some further guidance.  
 24 One is your request that you be able to at least  
 25 explain the process for -- I'll call it the September 30

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17:22 1 to make an application in respect of any documents that  
 2 we think do warrant further submissions from us? That's  
 3 the first point.  
 4 The second point is that I'm assuming -- and I can't  
 5 immediately identify in my own mind whether there is  
 6 going to be a category of such documents, but I'm  
 7 assuming that none of the documents that you have  
 8 identified would properly include draft documents, what  
 9 in American legal parlance might be described as "work  
 10 product" or something of that nature. So that if there  
 11 are draft documents of PIC reports or something like  
 12 that, what we will provide you with is the final  
 13 version, not the manuscript annotations or anything of  
 14 that nature. I think that may also be something to  
 15 clarify.  
 16 THE CHAIRMAN: I think I would propose the following, if it  
 17 seems feasible for Pakistan. It would be useful for the  
 18 Court to receive from Pakistan by letter, sometime, end  
 19 of this week -- perhaps you need a bit of relaxation  
 20 before sending it in, but sometime in the coming days or  
 21 weeks -- a letter that indicates two different things.  
 22 One is the type of submission you have in mind that  
 23 would accompany the September 30 documents. That could  
 24 include the process by which you engage in the document  
 25 production. It could include what types of documents

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17:23 1 were not included, such as, say, work product-related  
 2 documents. It could include an indication of the  
 3 standards you use for what's relevant and what's not  
 4 relevant. It could include some sort of index of the  
 5 kind that I indicated. So that's one issue that the  
 6 letter might address.  
 7 The second issue leads into what I understood to be  
 8 your request earlier today that there might be  
 9 a post-hearing substantive brief of some kind. I think  
 10 you mentioned as one issue Pakistan's method of  
 11 calculating pondage relating to Baglihar; perhaps more  
 12 as a second issue, on the method of calculation that you  
 13 are currently advancing in this proceeding; and then  
 14 I think a third issue that you raised related to  
 15 Annexure E.  
 16 I don't know if there are other issues that, over  
 17 the course of today, have risen to a level that you  
 18 think might be worthy of a post-hearing submission. But  
 19 the fourth one you mentioned, I think, was: anything on  
 20 the Court's mind. And certainly we will be discussing  
 21 that and reaching our own conclusions as to whether  
 22 there is something more that we would like to hear from  
 23 you on.  
 24 But that's the second thing you could address in the  
 25 letter, perhaps indicating with somewhat greater

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17:26 1 to give you a post-hearing submission without limits".  
 2 We feel that we've put quite a lot in front of you. So  
 3 if there were any issues that you were able to give us  
 4 guidance on, either now or at the end of the week, and  
 5 we would then come back to you with a considered view as  
 6 to what we would propose, that would also be helpful.  
 7 I don't know whether that would work. We can't look  
 8 into your minds at the moment and see exactly where you  
 9 think there's a paucity of information.  
 10 THE CHAIRMAN: So it's a question of who goes first in this  
 11 process.  
 12 I think the way I'm thinking of it is: if Pakistan  
 13 feels it's had the opportunity to say everything that it  
 14 would like to say in the course of this hearing, that's  
 15 completely fine; and that you're not looking for any  
 16 particular opportunity in a post-hearing submission to  
 17 address in greater depth a particular issue, that's  
 18 completely fine. The Court will then be contemplating  
 19 whether we feel we would like to have something further,  
 20 and we in due course would then let you know that, and  
 21 it would ultimately be included in a procedural order.  
 22 So I guess I am throwing the ball back to you in the  
 23 first instance to assess, after things have settled down  
 24 a bit, whether you feel there's something more you wish  
 25 to bring to us. If not, we'll let you know if we think

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17:25 1 specificity what the scope is that you would be  
 2 interested in submitting to us on.  
 3 SIR DANIEL: Mr Chairman, we are certainly happy to do that.  
 4 And perhaps if you give us a little bit more of  
 5 a latitude beyond this week, that would be much  
 6 appreciated.  
 7 But I do raise a question on which it would be  
 8 helpful to have your guidance, insofar as you're able to  
 9 give it.  
 10 We came to the view, which I expressed this morning,  
 11 that a post-hearing submission may be useful and  
 12 relevant partly because we wanted to be responsive to  
 13 the Court.  
 14 So, for example, on Annexure E, you have raised  
 15 quite a number of issues there. You may feel, having  
 16 heard me for an hour or so on Annexure E, that you don't  
 17 feel you need any more. If you think that it would be  
 18 helpful to have something more, we would be more than  
 19 willing to offer it; indeed, we would be eager to offer  
 20 it, in particular on the relevance of Annexure E for the  
 21 purposes of the interpretation of Annexure D. And it  
 22 doesn't have to be, intuitively, a very lengthy  
 23 document.  
 24 But we, I think, would be disinclined, of our own  
 25 motion, just to follow that piper and say, "We're happy

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17:28 1 there's something more you should bring.  
 2 SIR DANIEL: Well, I think that's one of the advantages of  
 3 the upstream and the downstream: you can deliver to me  
 4 and I will have to respond.  
 5 But we will come back to you, may we say, by the end  
 6 of July with that correspondence? It will allow us to  
 7 reflect, away from The Hague, on those issues. And we  
 8 will certainly come back to you on all of that.  
 9 THE CHAIRMAN: Okay. So end of July, a letter from Pakistan  
 10 on the issue of both the September 30 submission, what  
 11 that would look like, and whether there are any  
 12 particular issues you would like to follow up with us  
 13 on.  
 14 SIR DANIEL: Yes, indeed.  
 15 THE CHAIRMAN: In addition to that set of issues, we would,  
 16 in a procedural order, want to give India an opportunity  
 17 to comment on any materials that have already been  
 18 submitted post-Memorial, let's say, materials relating  
 19 to the hearing; and then separate from that,  
 20 an opportunity to comment on materials submitted later  
 21 in the process, September 30.  
 22 I will note that I keep saying "September 30". If  
 23 there are tranches of materials that can be sent in, the  
 24 Court would certainly welcome receiving it at whatever  
 25 pace is possible. But I leave that to you to --

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17:29 1 SIR DANIEL: We have that very much in mind, and we will  
 2 obviously wish to get whatever we can to you earlier on.  
 3 And of course, on India having an opportunity to  
 4 comment, we of course completely agree with that. And  
 5 I note, Mr Chairman, that you, as it were, bifurcated  
 6 that process: that the Court will afford India  
 7 an opportunity to comment on the documents that have  
 8 been adduced in the hearing by some specified date; and  
 9 then the 30 September -- for shorthand -- documents in  
 10 due course.  
 11 I presume, just anticipating a more substantive  
 12 post-hearing submission that deals with the documents,  
 13 India would not be provided with an opportunity to  
 14 comment on the substance of any documents that we may  
 15 adduce on 30 September in advance of any opportunity  
 16 that we may have to comment on the substance. Because  
 17 at the moment, what we are addressing is simply the  
 18 production of documents and a mere description of the  
 19 relevance review that will be undertaken. But no doubt  
 20 that's an issue that you will address with us in due  
 21 course.  
 22 THE CHAIRMAN: Yes, I think as a general proposition,  
 23 it would be a parallel opportunity on the part of India  
 24 to comment on whatever the scope is of information and  
 25 submissions that you have been entitled to make.

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17:32 1 parties, to give you a chance to look at it prior to  
 2 issuance.  
 3 SIR DANIEL: Thank you.  
 4 THE CHAIRMAN: Transcript corrections, pursuant to  
 5 Procedural Order 12, need to be done in 14 days. So  
 6 I assume that's on your radar screen.  
 7 SIR DANIEL: It is.  
 8 THE CHAIRMAN: And we have an issue with respect to the  
 9 publication of documents from the hearing. As I think  
 10 you will recall, the Supplemental Rules of Procedure  
 11 leave open the question of publication of the  
 12 submissions that have been made to the Court until the  
 13 hearing to which they relate. Now, Procedural Order 12  
 14 provided that we would revisit this issue in the course  
 15 of the hearing, so that's why I raise it now.  
 16 The issue, I think, is whether Pakistan is agreeable  
 17 to the publication of its Memorial; and then beyond  
 18 that, the hearing transcripts; and then beyond that,  
 19 other materials.  
 20 Now, I would note that with respect to the hearing  
 21 on competence, we made public Pakistan's submission on  
 22 competence and we made public the Court's questions to  
 23 Pakistan and we made public the hearing transcript. So  
 24 a question is whether a mutatis mutandis approach would  
 25 be taken here; or whether, in addition to that, slides

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17:30 1 If a post-hearing substantive submission on some  
 2 number of issues is ultimately decided upon, do you have  
 3 a sense of the timing within which Pakistan would be  
 4 able to do that submission?  
 5 SIR DANIEL: Mr Chairman, we have reflected on this  
 6 on the basis of the three categories of the Baglihar  
 7 methodology, any residual points that we might wish to  
 8 address on the calculation of pondage and Annexure E,  
 9 leaving aside the unknown unknowns of whether there are  
 10 any questions that you would want to put to us, and  
 11 we would hope to get that to you relatively quickly.  
 12 I mean, we would have our eyes sighted on 30 September  
 13 as well, because that would seem to be sensible.  
 14 But we're also conscious that we have -- as is on  
 15 the public record -- a hearing in a parallel proceeding  
 16 that's coming up in early September as well, so we will  
 17 be preoccupied on that. But we don't want to deny you  
 18 a full docket of submissions for longer than is  
 19 absolutely necessary.  
 20 THE CHAIRMAN: So we also have an issue of a press release  
 21 for the hearing. It's our intention to issue a press  
 22 release, as we've done in the past, that would include  
 23 both an indication that the hearing took place and  
 24 photos from the hearing. So our plan is to have the  
 25 Registry circulate a draft of that press release to the

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17:34 1 might be made public, whether exhibits to Pakistan's  
 2 Memorial might be made public, appendices. I think  
 3 these are issues that it would be worth hearing from  
 4 Pakistan on.  
 5 I guess I might, as you're pondering this, note that  
 6 there were issues in the competence hearing context  
 7 where Pakistan preferred that certain -- that all  
 8 exhibits actually not be made public because of the  
 9 different types of information that were found within  
 10 them. And so it's a question in part whether that holds  
 11 true today, or whether we're in a different place.  
 12 SIR DANIEL: Thank you, Mr Chairman. I think I'm not in  
 13 a position to give you a comprehensive and formal answer  
 14 on that now. But that's perhaps something that we can  
 15 come back to even more quickly than the end of July  
 16 correspondence that deals with post-hearing submissions,  
 17 because I don't think that will take terribly long to  
 18 resolve.  
 19 My recollection is that Pakistan also made  
 20 a proposal at the time of the competence hearing for the  
 21 publication of certain other materials which the Court,  
 22 for its own reasons, decided that you would not wish to  
 23 put on the website. So it may be that there are issues  
 24 that exercise you as well.  
 25 As an initial observation, the exhibits and the

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17:35 1 legal authorities are obviously -- there's a very big  
 2 volume of them, and some of those do address -- not the  
 3 legal authorities, but certainly some of the exhibits do  
 4 address wider issues. So I expect that the same kinds  
 5 of sensitivities may arise with respect to the exhibits  
 6 and with respect to the legal authorities. Those tend  
 7 to be available publicly in any event, so there may not  
 8 be so much of an issue there.  
 9 There's also an issue with regard to the four  
 10 appendices that we've put forward.  
 11 And I note in this regard: I think there would also  
 12 be an issue about the site visit, because there was  
 13 a press release with respect to the site visit, but  
 14 I don't believe that the transcripts or, for that  
 15 matter, the video recording of the site visit has  
 16 been -- that there's been any suggestion that they be  
 17 put online just at the moment.  
 18 Pakistan's temperament from the first procedural  
 19 meeting through to the competence hearing, and I expect  
 20 now, will be to err on the side of publication, but  
 21 there may be some documents that we would wish to  
 22 persuade you shouldn't be published. But if I may,  
 23 we'll come back to you on that formally, rather more  
 24 quickly than the end of July.  
 25 THE CHAIRMAN: Well, that would be fine.

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17:39 1 version, which did have the redactions, but there may  
 2 not be much utility to that.  
 3 But we'll come back on the transcripts and the  
 4 questions and the videos as well as part of that  
 5 response.  
 6 THE CHAIRMAN: Yes. In any event, we will look forward to  
 7 hearing from you both on the materials relating to this  
 8 hearing and the materials relating to the site visit.  
 9 SIR DANIEL: The site visit, yes.  
 10 THE CHAIRMAN: A further issue is that we're going to review  
 11 the finances of the proceedings with our treasurer after  
 12 this hearing is concluded, and we will likely need to  
 13 request a further deposit of funds to address the costs  
 14 associated with things principally going forward: the  
 15 deliberations and preparations of an award or awards in  
 16 due course. So I just wanted to flag that for you as  
 17 something that may well be coming soon.  
 18 SIR DANIEL: Thank you, Mr Chairman. Happily that's far  
 19 above my pay grade, but let me make an observation, and  
 20 that is that I'm sure that my colleagues in Pakistan  
 21 would appreciate that when that request for funds comes,  
 22 that it perhaps doesn't necessarily come on the usual  
 23 arbitral sort of 30-day turnaround, and that you also  
 24 look at the process going forward, simply because there  
 25 are procedures to procure funds as well. So the more

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17:37 1 Next on my list was the site visit that you just  
 2 raised. We do have a protocol relating to the site  
 3 visit where there were certain redacted portions, out of  
 4 a sense of security. One possibility is that we now  
 5 take away those redactions and place the full protocol  
 6 up on the website.  
 7 So that's one issue relating to the site visit; the  
 8 other is the transcript from it; and a third is the  
 9 Court's questions that were put pre site visit to  
 10 Pakistan. All of those are possibilities for posting on  
 11 the website.  
 12 There's also a possibility of posting the video, but  
 13 that's, I think, in a different category perhaps. It's  
 14 really the other items that one might want to seriously  
 15 consider making public.  
 16 SIR DANIEL: We certainly will do so, as I intimated just  
 17 a moment ago.  
 18 I may be misremembering: I had thought that the  
 19 Site Visit Protocol was now published, but the version  
 20 that had -- with all the dates. But the version with  
 21 the amendments, because of the weather-related issues  
 22 and so on, I had thought that was on the website, but  
 23 Mr Schofield will instantaneously be able to access the  
 24 website and confirm that. That doesn't of course mean  
 25 that you may not want to publish the preliminary

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17:40 1 time that you can give us in terms of telegraphing that,  
 2 in terms of the amounts to be paid and so on, that would  
 3 be helpful.  
 4 I note also that if the past is a guide to the  
 5 future, we are unlikely to get contributions from India.  
 6 So when the date arises where India does not make  
 7 a payment of funds, realising that my colleagues in  
 8 Pakistan will have to make a fresh request for funds,  
 9 it may be something that should be borne in mind.  
 10 But if you are content with this, it may be most  
 11 convenient if I just engage informally with Mr Schofield  
 12 on these issues, so that we can work out that agenda.  
 13 THE CHAIRMAN: I think that's fine. And I don't see any  
 14 difficulty in being sensitive to the concerns that  
 15 you've just raised.  
 16 So I think that's it for my list of housekeeping  
 17 items, with the principal takeaway being that we'll hear  
 18 from you sooner rather than later about the materials  
 19 concerning the hearing and the site visit; a little bit  
 20 later, but no later than the end of the month, on  
 21 post-hearing submissions.  
 22 I have taken your interest in the Court possibly  
 23 signalling the things that the Court is interested in,  
 24 and if we are able to convey any of that to you, even  
 25 before the end of the month, we will do that. But

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17:42 1 otherwise, we'll regard the ball as in your court.  
 2 SIR DANIEL: Thank you.  
 3 We know, because you've said this on the record,  
 4 that you will be deliberating tomorrow. If there are  
 5 issues that come out of that that you can indicate --  
 6 that you would find it helpful to have, for example,  
 7 Annexure E addressed, or that you think that your  
 8 concerns or your enquiry has been addressed -- that  
 9 would be helpful.  
 10 The only other point on my agenda is just to recall  
 11 the point that I raised this morning about the  
 12 possibility of more than one partial award. I don't  
 13 think that that's something that needs to be addressed  
 14 in any correspondence. You may have detected from the  
 15 final version of the final submissions that Mr Murtaza  
 16 read out formally that we have included there language  
 17 to say "in one or more partial awards", and that's  
 18 obviously going to be a matter entirely within the  
 19 discretion of the Court. So I don't think that there's  
 20 anything more that I need to say on that.  
 21 So that would be my agenda. I would, before the  
 22 microphone is turned off, like to express thanks, but  
 23 I defer to you.  
 24 THE CHAIRMAN: Well, just on that last point, the Court  
 25 hasn't yet deliberated on that issue of one or more

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17:43 1 awards, and indeed it may not be a matter that we can  
 2 resolve until we get further along in our process. But  
 3 I would just say that, as a general proposition, I think  
 4 Pakistan can proceed on the assumption that there would  
 5 be a single award, unless the Court informs you that  
 6 we've decided we will do something different; and we  
 7 would let you know that, and the timeframe you might  
 8 expect for at least an initial or partial award coming  
 9 out.  
 10 SIR DANIEL: Thank you very much.  
 11 THE CHAIRMAN: So I think that's it. Did you have some  
 12 thoughts of thanks?  
 13 SIR DANIEL: Well, I do indeed.  
 14 Mr Murtaza has formally expressed the thanks on the  
 15 part of the Government of the Islamic Republic of  
 16 Pakistan and all of those who are here as its counsel  
 17 and experts and representatives and those assisting in  
 18 the process, but I would also simply like to echo my  
 19 thanks and the thanks of those people who have been  
 20 speaking from the podium.  
 21 We appreciate very much the engagement of the Court,  
 22 particularly as we don't have the engagement of the  
 23 Respondent, to be able to gauge your reactions to the  
 24 strengths or weaknesses or challenges or complexity of  
 25 the case. It would have been much more challenging to

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17:45 1 be standing here for seven days without any response at  
 2 all from the bench. So we do appreciate that. We know  
 3 that Mr Minear has an experience of an even more robust  
 4 procedure, over 15 minutes or 30 minutes or whatever,  
 5 but this has taken a little bit longer.  
 6 So it's really to express our thanks to you,  
 7 Mr Chairman, for the meticulous way in which you've  
 8 organised and run the proceedings; to all the members of  
 9 the Court for your courtesy and engagement with us; and  
 10 to the members of the Secretariat, both those in the  
 11 room and I know that there are many others who are not  
 12 in the room; to the court reporter; to the technicians;  
 13 to those who have provided us with sustenance over the  
 14 course of the last days. We very much appreciate it.  
 15 We are very much always in awe of being in the  
 16 Japanese Room at the Peace Palace: I think it's  
 17 something that is conducive to the settlement of  
 18 international disputes. So thank you very much.  
 19 THE CHAIRMAN: Well, thank you for that, Sir Daniel.  
 20 I think I will add to the words of thanks that have  
 21 been expressed so far.  
 22 First, to the representatives of Pakistan who are  
 23 here: we very much value your presence, both coming  
 24 from Islamabad and coming from The Hague. It's  
 25 an important case that we know the Government cares

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17:46 1 deeply about, and it's been a pleasure to have you here  
 2 among us.  
 3 Also thanks to the counsel and advocates and  
 4 technical advisors for a whole series of excellent  
 5 presentations that provided us with quite a bit of  
 6 information, not just bringing back in front of us the  
 7 Memorial materials but extending it a little bit deeper,  
 8 providing us a sense of the nuances of the issues before  
 9 us.  
 10 Our questions, to the extent that they may have felt  
 11 pushing back, perhaps even raising issues that perhaps  
 12 India would raise if it was here, were all designed to  
 13 simply make this proceeding as fruitful as possible in  
 14 looking at the issues carefully, so that we can reach  
 15 a well-reasoned decision.  
 16 I too also want to thank our Registrar and the rest  
 17 of the PCA staff who have been so helpful to us in  
 18 working through this hearing. And I know they have  
 19 provided a lot of assistance not just to the Court but  
 20 to Pakistan as well, and we don't take that for granted.  
 21 Thank you, too, to our court reporter for excellent  
 22 service throughout the hearing, both in providing us  
 23 with the live transcript but also in a very speedy  
 24 turnaround of the final daily transcript at the end of  
 25 the day, which has been of great value certainly to the

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17:47 1 Court, and I'm sure to Pakistan as well.  
2 There's a lot of work that remains to be done. Some  
3 of it is for Pakistan, in terms of post-hearing  
4 submissions, but much of it is for the Court. We will  
5 be fully engaged on this as we move forward. As I think  
6 I've said on other occasions, and multiple times in this  
7 hearing, we are not driven by speed; we're driven by  
8 cogent and clear analysis of the matter. But we also  
9 have a desire to bring the decisions out in a timely  
10 manner. So we will be guided by all of those elements  
11 as a North Star for us.  
12 So that's all I wanted to say in closing. I wish  
13 everyone safe travels back to whatever you're coming  
14 from, and I certainly look forward to seeing everyone in  
15 due course.  
16 With that, we are concluded.  
17 (5.49 pm)  
18 (The hearing concluded)  
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ARBITRATION PURSUANT TO ARTICLE IX AND ANNEXURE G OF THE INDUS WATERS TREATY 1960

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