International Court of Justice

THE HAGUE

Cour internationale de Justice

LA HAYE

YEAR 1997

Public sitting

held on Wednesday 5 March 1997, at 10 a.m., at the Peace Palace,

President Schwebel presiding

in the case concerning **Gabcíkovo-Nagymaros Project**

(Hungary/Slovakia)

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VERBATIM RECORD

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ANNEE 1997

Audience publique

tenue le mercredi 5 mars 1997, à 10 heures, au Palais de la Paix,

sous la présidence de M. Schwebel, Président

en l'affaire relative au **Projet Gabcíkovo-Nagymaros**

(Hongrie/Slovaquie)

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COMPTE RENDU

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Present: President Schwebel

Vice-President	Weeramantry
Judges	Oda
	Bedjaoui
	Guillaume
	Ranjeva
	Herczegh
	Shi
	Fleischhauer
	Koroma
	Vereshchetin
	Parra-Aranguren
	Kooijmans
	Rezek
Judge *ad hoc*	Skubiszewski
Registrar	Valencia-Ospina

Présents : M. Schwebel, Président
M. Weeramantry, Vice-Président
MM. Oda
Bedjaoui
Guillaume
Ranjeva
Herczegh
Shi
Fleischhauer
Koroma
Vereshchetin
Parra-Aranguren,
Kooijmans
Rezek, juges

Skubiszewski, juge *ad hoc*

M. Valencia-Ospina, Greffier

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The PRESIDENT: Please be seated. Good morning. We now proceed with the oral presentations of the Republic of Hungary and I call on Professor James Crawford.

Mr. CRAWFORD:

10. THE SUSPENSION AND TERMINATION OF WORKS

THE LEGAL STANDARDS APPLIED

INTRODUCTION

1. Mr. President, Members of the Court. I turn now to the application of the legal standard which Professor Dupuy described yesterday, the legal standard of necessity, to the facts of the case. I suppose the Court must by now feel somewhat knee-deep in facts! Jusqu'aux genoux je comprends ou même jusqu'aux aisselles. To some degree, I'm afraid, this is in the nature of things. Hungary has tried and will go on trying to make the factual issues as "user friendly" as we can – perhaps I should have said as "judge-friendly" – and to reduce the technical issues to a minimum, but it is a necessary minimum. You may wish at some stage to revisit the video to assist in gaining an overview of the factual issues. There are multiple copies of the video in both the official languages. As the Agent said on Monday, lawyers like to dwell in the halls of law, something which is easier to do perhaps on a preliminary objection than when one gets to the merits of a case, but the merits on this case concern a dispute in the world, which it is an honour to bring before this World Court.

2. The particular question I have to address is whether on the facts the principle of necessity was available to Hungary to justify its termination of works at Nagymaros and then on the upstream sector at Dunakiliti and finally Gab_íkovo. The issue arises more especially with respect to the termination of works, since as Professor Nagy has shown, the suspension of

works did not as such conflict with the Treaty of 1977, as distinct from the detailed schedule of work in the Joint Contractual Plan. But Hungary accepted that both suspension and termination of works required an explanation, and the explanation it has consistently given was that the Original Project would have required it to run risks and actually to incur damage amounting to major damage to vital interests. International law did not then and does not now require it to do so[1] .

A Note on Chronology

3. I should first say a word about the chronology of events[2]. Hungary's initial suspension of work at Nagymaros occurred on 13 May 1989. It had been preceded, in January of that year, by a Government resolution expressing concern about the environmental impacts of the Project, a concern equally expressed in a Slovak Government resolution of 18 January 1989[3]. There were meetings at different levels on 3 March, 8 April, and 3 May at which concerns were expressed[4]. The suspension of works was immediately notified to Czechoslovakia and forthwith discussed at Prime Ministerial level on 24 May, when the Czechoslovak Prime Minister expressed willingness to examine the issues at the level of substance[5]. So there were no surprises. Everyone knew there was a serious issue. The question was what to do about it. In fact, despite initial understanding on the part of Czechoslovakia that there were problems which required examination[6], no agreement could be reached.

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1 See HM, paras. 9.01-9.42; HC-M, paras. 5.23-5.38; HR, 3.03-3.40.

2 See HM, paras. 9.04-9.06.

3 HM, para. 3.67.

4 HM, para. 3.68-3.69; HC-M, paras. 2.31-2.34.

5 HM, para. 3.78.

6 *Ibid.*; also HR, Vol. 2, App. 6, para. 8.

4. While the search for agreement continued, the suspension of works at Nagymaros was twice extended. Eventually, on 10 January 1990, Hungary announced that it would terminate the Austrian private contract for construction of Nagymaros and it negotiated compensation with the Austrian company for the termination of its contract[7].

5. In July 1989, Hungary also suspended certain works at Dunakiliti which were necessary if the Danube was to be diverted that year[8]. But Hungary continued work at Dunakiliti and at Gab_íkovo through 1990. It did not actually cease spending on the upstream sector until late 1991. The formal handover of works at Gab_íkovo occurred at the end of 1991[9].

6. It should be stressed that Hungary never suspended the Treaty as such, and the Plenipotentiaries appointed under Article 3 of the Treaty continued to meet. Hungary accepted that the Treaty provided the framework within which issues of compensation would have to be negotiated, and that if satisfactory solutions to the problems in the upper sector of the Project could be addressed there was the possibility that work on that sector might be resumed. Both Parties accepted that the 1977 Treaty remained in force. In its pleadings Slovakia confuses suspension or termination of works under the plea of necessity and suspension or termination of the Treaty itself. But as I have said, the parties to the Treaty, Hungary and Czechoslovakia, made no such error. Although they disagreed on the substance from a fairly early point, there was no complaint from Czechoslovakia that Hungary had not followed the procedural requirements for suspension and termination of treaties. In fact there

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7 HM, para. 3.105.

8 HR, paras. 3.32-3.33.

9 HR, paras. 3.34-3.38.

were very frequent meetings over the dispute at all levels, and each side was kept well aware of the concerns of the other.

THE CHANGING CONTEXT AND ITS IMPACT ON THE PARTIES

7. I should also say a word about the context in which these events occurred. It is commonplace to talk about a changing world, about times of transition. Such talk only too often produces the cynical response, plus ça change, plus c'est la même chose. But the fact must be faced that what happened in Central and Eastern Europe in the short period from 1989-1990 was a change of a fundamental character, social, political and economic. No doubt in such periods of change much is lost as well as gained. But the fact of change is undeniable.

8. Now Hungary has never said that these changes were sufficient in and of themselves to justify a departure from international obligations or the termination of treaties. But they were *relevant*. They involved the dissolution of COMECON, the termination of the Warsaw Pact, the first free elections in the two countries since 1947, the collapse of regional monetary arrangements with major economic effects in terms of changes in demand and energy prices, and so on. At the same time there was increased awareness of the long-term environmental implications of major industrial projects, and an acceptance of the need for public involvement in decision-making on major projects. To describe these cumulative changes, with Slovakia, as merely "internal political changes" is absurd[10].

9. Mr. Sands will discuss further the relevance of these changes in the context of the termination of the 1977 Treaty. But there is a further point, which is that in the midst of these changes, to expect complete consistency by the Parties is unrealistic. On each side the Project

[10] SM, para. 8.78.

was handled at different levels, by the construction companies and their engineers on the ground, by the Government Plenipotentiaries with fixed schedules of meetings, and by the Governments themselves, Ministers and Prime Ministers occasionally drawn in as one or another difficulty emerged. These different levels could and often did take different positions.

10. An example of inconsistency occurred in January 1990, when at the same time - as Hungary announced that it could not build Nagymaros – the Slovak Government Minister for Water Management announced that his Government accepted that position, and was prepared to see a modification to the 1977 Treaty and another agreement on environmental guarantees[11]. But such flexibility – which if had been accepted at the level of the Czechoslovak Government and carried further in negotiations could very well have produced a way out of the problem – such flexibility was not sustained, and was never accepted by the Czechoslovak party. Czechoslovakia never accepted the abandonment of Nagymaros. Since its independence, Slovakia has never done so. It now asks the Court to order Hungary to build at Nagymaros, as I have said. Such inconsistencies - the inconsistencies of the Slovak Government Minister for Water Management in this case - do not necessarily entail subjective bad faith, although they may show that the person concerned lacked influence over events. In fact there is good evidence, as Hungary will show, that Variant C was under preparation at this time.

The Positions of the Parties

11. The legal standard applicable to Hungary's conduct in suspending and terminating works is that expressed in Article 33 of the State Responsibility Draft Articles, the standard of necessity. Applying that standard, Hungary says that the threats to the environment and to

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[11] HM, Vol. 4, Ann. 32; for discussion see HM, para. 3.106.

drinking water resources involved an "essential interest of the State". The threats were "grave", and they were "imminent" in the sense that if the Barrage System was built as planned in 1989, they would in all probability follow. No doubt they would take some time to follow. But they *would* probably occur unless major modifications were introduced – and none were on offer. In the downstream sector, the mere fact of the Barrage was probably going to produce impacts on drinking water supplies, whether or not peak power was employed. In the upstream sector the impacts on biodiversity would probably occur, and the threats to groundwater and to drinking water reserves was real. These could not be avoided by available mitigation measures. Hungary sought to negotiate alternative solutions within the framework of the Treaty, and continued to do so until Variant C supervened. In the exceptional circumstances permitted by international law and shown to be present here, Hungary was justified in suspending and subsequently terminating works.

12. What does Slovakia say in response? First of all, it seeks to avoid the argument entirely by purely legal controversies, claiming for example that the defence of necessity is not available in relation to a treaty obligation. Professor Dupuy has dealt with those arguments. Secondly, it says that the Hungarian scientific arguments have no substance – "science fiction" was the term used[12]. The Court will have to judge for itself whether this careful and moderate presentation of the issues by Professor Vida, Professor Carbiener, Professor Wheater and Dr Kern, building upon the substantial presentations of the issues in the written pleadings, warrants such abuse.

13. But Slovakia makes a number of further arguments, to which I now need to respond. In fact there are six of these.

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[12] SM, para. 4.68.

(1) Hungary acted in bad faith

14. First, it is said that Hungary acted in bad faith. "Fabrication", "falsification", "grotesque", "misleading", "nonsense", "perverse", "preposterous", "purported", "ridiculous", "self-serving", "senseless", "sham", "shirk", "tendentious", "unsubstantiated" "utter indifference", "wholly without sense", "world of make believe". These are the kinds of terms applied by Slovakia[13]. But let us ask why? Why is the suggestion of bad faith so persistently made. The answer is no doubt that if Hungary was acting in good faith then something more had to be done than simply to insist on the implementation of the Project and then wait and see if things could be fixed. If Hungary's concerns were justified, even potentially – if they involved valid concerns as to vital interests – then something more was imperatively called for. This 200 km experiment in peak power generation would have to be if not abandoned then massively moderated. And those directly involved would have none of that.

15. Consider *a priori* how unlikely successive Hungarian Governments were to be acting in bad faith. Hungary spent 25,000 million forints on the Project to the end of 1990 – in current values perhaps half a billion dollars – so far for virtually nil return. It also borrowed nearly 3 billion Austrian schillings to speed up the work at Nagymaros and reduce the burden on the State budget, and is still paying out that loan. And yet it is said that it acted in bad faith. If they did not believe that there were problems with the project, the behaviour of successive governments, of different political persuasion but each of them seeking improved relations with Slovakia for hosts of other reasons, is simply incredible.

16. I should perhaps in this context mention the events of February to May 1989 which, while not evidence of bad faith, seem to show a certain inconsistency of conduct. In February

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[13] See "Index of Words and Phrases...", HR, Vol. 2, App. 1.

the Hungarian Government signed a protocol to the Mutual Assistance Agreement accelerating the Nagymaros works by a year, as Professor Valki mentioned on Monday[14]. In May, Hungary suspended work at Nagymaros. It was the same Government – the Hungarian Government did not change until after the elections of 25 March 1990 – the same transition Government was involved throughout.

17. The reason for the apparent change of course is rather simple. The agreement on rescheduling was first conceived in 1986, following a new contract with Austrian contractors who had spare capacity after the cancellation of the Hainburg Dam in 1984. The Protocol was agreed in principle on 12 January 1988, but it was not finally concluded at government-to-government level until February 1989 because there was no meeting scheduled of the relevant body until that date[15].

18. In the meantime much else was going on, new reports were being produced by international and national bodies questioning the Project[16], the earlier political constraints on disagreement with the Party line were disappearing. The technical consequences for the internal timetable of the Project, not reflected in the 1977 Treaty itself, were treated as irrelevant by all concerned in mid-1989.

(2) *The Need for Joint Ascertainment of Facts; Mere belief by one Party that Grounds existed for Suspension is not enough.*

19. Secondly, Slovakia argues that the mere existence of a belief by one party, no matter how reasonable, I believe in circumstances which would amount to a state of necessity is not

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14 CR 97/2, pp. 31-32, para. 16.

15 See HM, para. 3.71 with references to the documentation. See also SC-M, paras. 4.36-4.38.

16 HM, paras. 3.74-3.77; HR, paras. 1.87-1.89.

enough. Instead there had to be joint agreed ascertainment of facts before any action could be taken by either party[17]. Certainly, joint ascertainment of facts would be appropriate, and Hungary was always willing to engage in a joint fact-finding exercise looking at the whole project under appropriate auspices.

20. But the problem was that the Danube was to be diverted within a few months, and major work on Nagymaros Dam was on the point of beginning. The question was not whether the Parties should engage in a joint investigation in the nature of an environment impact assessment – that was precisely what Hungary sought. It was what should be done in the meantime. Hungary sought a suspension of work, work which would have definitive effect as of 1989, in terms of actually building a dam in the river at Nagymaros, and actually diverting the Danube at Dunakiliti. Yet Czechoslovakia consistently refused any such suspension, claimed to have investigated fully all scientific and engineering options in the period from the end of July to early September 1989[18], five weeks including the whole of that period, and then began actively planning Variant C.

21. There is however an important underlying point here, not as to whether a party could refuse to engage in joint fact-finding under appropriate auspices, because Hungary never did so refuse – but as to whether a reasonable belief in future harm is a basis for a plea of necessity. Slovakia appears to think that harm or damage must be a *fact* before anything can be done about it. But Russia's conduct in the *Fur Seals* case was held justified not because particular seals had in fact been killed, but because it had a reasonable apprehension that if the culling continued the population would be endangered[19]. There is nothing new in this

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17 E.g. SC-M, para. 10.11. See HR, paras. 3.15-3.20.

18 HM, paras. 3.84-3.92.

19 Moore, I *Int. Arb.* 826, as described in HM, paras. 10.12-10.14.

precautionary approach, and it is quite obvious that the doctrine of necessity must extend to reasonable apprehension of future harm. The International Joint Commission has applied exactly the same approach, for example, in the *Garrison Diversion Case* in 1977[20]. A government must be entitled to act on the basis of a reasonable and well-founded belief.

22. Of course Czechoslovakia also argued, and Slovakia now argues, that Hungary's concerns were not reasonable given the possibility of "remedial measures" being adopted, in particular underwater weirs. My colleagues will examine these later this morning. It is sufficient to make two points. First of all, underwater weirs had no application to Nagymaros. The only remedial measure proposed for Nagymaros was the subsequent possibility of eliminating peak power, and yet peak power was the primary justification for building Nagymaros in the first place. A "remedial measure" of this kind called into question the viability of the entire project – already finely balanced as Ms Gorove has shown. Secondly, even in relation to the Szigetköz, underwater weirs are extremely problematic, especially in terms of their long term effects and in the absence of substantial changes to the amount of water being supplied. Simply to assume that such weirs would solve the problem avoided the central point Hungary was making – which was that the whole balance and economy of the project needed a thorough review.

(3) Article 27 provided the only means for resolution of any dispute

23. Thirdly, Slovakia argues that Article 27 of the Treaty provided the framework within which any issues arising in relation to the Project had to be resolved[21]. As a *lex specialis*, according to Slovakia, it prevented any steps being taken without the prior agreement of the other party.

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[20] As described in HR, Vol. 2, App. pp. 184-7.

[21] SM, para. 8.58; SC-M, para. 10.39. See in reply HC-M, paras. 5.31-5.38; HR, para. 3.13.

24. Article 27, paragraph 1, provides that the settlement of disputes in matters relating to the realization and operation of the System of Locks shall be a function of the government delegates, otherwise known as plenipotentiaries. These were middle level officials appointed under Article 3 of the Treaty and given the task of overseeing the construction and operation process.

25. In practice the system of plenipotentiaries operated in a flexible manner. Many issues were dealt with by the plenipotentiaries. Others were dealt with by ministers or prime ministers. The plenipotentiaries were not an exclusive forum, if ministers wanted to take issues up directly they did so, often in parallel with the plenipotentiaries. In fact the notification of suspension was made directly between governments, and Czechoslovakia made no objection to that procedure.

26. This puts Article 27, paragraph 2, into perspective. It provides that:

> "If the Government delegates are unable to reach agreement on the matters in dispute, they shall refer them to the Governments of the Contracting Parties for decision."

The ordinary meaning of this paragraph is clear. It is concerned with disputes initially dealt with by the plenipotentiaries which they cannot resolve. It has no application to disputes dealt with directly between the governments. Paragraph 2 says nothing about the case where no decision can be reached by the governments because they disagree. It is not a third party dispute settlement provision. Nor does it say anything about the substance of the dispute.

27. The Slovak argument on Article 27 implies that Czechoslovakia had the right of veto, and that Hungary was required to continue work on the Project until it had obtained the agreement of Czechoslovakia as to modification. This reads far too much into Article 27, which was a standard provision found in many COMECON agreements. If Czechoslovakia

had formally invoked Article 27 – which it did not – proceedings would have followed exactly the same course.

28. If Article 27 had provided for third party adjudication, the position would have been different. The third party could have dealt with the merits of the dispute, including Hungary's invocation of necessity. But even a third party dispute settlement clause would not have precluded Hungary relying on the defence of necessity. It would simply have provided a procedure for judging whether that defence was available. At all times Hungary expressed a willingness to and did in fact participate in negotiations, at all levels; it proposed third party settlement in various forms and it took the initiative in referring the matter to this Court.

29. It is worthwhile in this context, however, pausing to look at what I take to be the two best offers said to have been made by Czechoslovakia in an attempt to settle the dispute. What did the extensive negotiations between the Parties, they were not under Article 27, but what did they actually produce?

30. The first of these two "best offers" was contained in a Czechoslovak *Note Verbale* of 30 October 1989[22]. This offered unspecified "technical, operational and ecological guarantees" on condition that Hungary immediately prepare to divert the Danube upstream and resume construction of Nagymaros. It suggested a separate agreement "in which both parties would oblige themselves to limitation or exclusion of peak power operation mode". It ended with a clear threat of unilateral diversion upstream.

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[22] HM, Vol. 4, Ann. 28.

31. The effect of the Czechoslovak offer was that Nagymaros should be built forthwith but peak power operation would be limited or perhaps excluded. This missed the point that, although peak power would have exacerbated the impact of the Nagymaros barrage, the essential danger for bank-filtered wells downstream arose from its very existence, as Professor Wheater explained yesterday. Czechoslovakia proposed, under threat of unilateral action, what a later Hungarian Prime Minister described as an "experiment with nature" on a scale of 1 to 1. Hungary sought to examine in advance what the effects of that experiment would be and how they might be mitigated. The Czechoslovak position was "let's build it and see".

32. The second "offer" to which I should refer was the alleged Slovak offer of a discharge régime of 350 m^3-s to the main bed of the Danube with weekly floods of 1300 m^3-s[23]. Three comments need to be made about this "offer". First, it needed further refinement, although that might have been possible in genuine negotiations aimed at reaching a solution to the dispute. But it did at least have the virtue of recognizing the essential need for frequent fluctuations in the discharge régime. Second, however, according to the Slovak record, that offer was not accompanied by any recognition that Nagymaros could not be built, for its own distinct reasons relating to peak power, environmental concerns and especially drinking water supplies. In other words it was contingent on the construction of the whole system. And thirdly, that offer was never communicated to Hungary. It was never made. It may have been formulated in the mind of someone on the Czechoslovak side seeking for a solution. If ever officially adopted within Czechoslovakia, which is very doubtful, it remained a secret to Hungary, the other party to the dispute[24].

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23 HR, para. 1.141, citing SM, para 2.69 (weekly flushings); SC-M, para. 4.33 (periodic flushings).

24 HR, para. 1.141.

(4) The interests were not essential.

33. I turn to the fourth Slovak argument, which is that the Hungarian interests at stake were not "essential"[25]. The point can be dealt with rather briefly. First, the ILC specifically instanced "the survival of the fauna or vegetation of certain areas ... to maintain the normal use of those areas or, more generally, to ensure the ecological balance of a region" as essential interests for the purposes of Draft Article 33[26]. The "ecological balance of a region", actually two regions, is a phrase which perfectly describes the present case. But in addition the issues of sustainability of drinking water supplies and reserves are obviously covered by the notion of essential interests.

34. The same point is made in the following series of comments:

"the upstream reservoir and various hydraulic structures related to Gab_íkovo have major impacts on the hydrological regime and the ecosystem of the region..."[27].

> "The Danubian Lowland... is an inland delta formed in the past by river sediments from the Danube. The entire area forms an alluvial aquifer... The aquifer is an important water resource for municipal and agricultural water supply... Industrial waste and municipal sewage... together with the diffuse sources of agricultural fertilizers and agrochemicals are polluting the rivers, soil and ground water. These physical and biochemical changes may... seriously deteriorate the ground water quality... [There are] urgent water resource problems in the area... very significant water resources problems in the area..."[28]
>
> "*The Danube River System*... can be seen as a major habitat for rheophile fish species and an important ecological corridor for [migrating] species...
> *The River Branch System* is of outstanding importance because of its sheer size, high biodiversity of its aquatic communities... and large potential for restoration."[29]

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25 SC-M, paras. 10.45-10.50 (Nagymaros), 10.51-10.55 (Dunakiliti); also SR, paras. 5.17-5.21.

26 *ILC Report*, 32nd yr, p. 49, para. 14, cited in HM, para. 10.10.

27 PHARE Report (1995), Vol. 1, pp. 0-1.

28 PHARE Report (1995), Vol. 1, pp. 1-1, 1-3.

29 PHARE Report (1995), Vol. 3, pp. 9-5.

The Court may perhaps not be familiar with these passages, which come from the 1995 PHARE Report produced by Slovakia a few weeks ago. It is true that this Report is concerned exclusively with the Slovak side and exclusively with the upstream sector of the Project. It says nothing about the Szigetköz and nothing about Nagymaros. But if the interests of Slovakia are at stake in relation to the environmental sustainability of the inland delta below Bratislava, so too were Hungary's and *a fortiori* Hungary's essential interests in relation to the actual drinking water supplies below Nagymaros. These were interests of a people, not merely of a government – the interests of present and future generations. 35. There was also an interest of both Parties in not wasting the investment each had made in the Project up to 1989. That was a financial interest. At the end of 1989 both Parties had spent very substantial amounts on the Project, although comparing the various amounts is difficult to do, due to the massive and rapid changes in currency values that occurred at the time[30]. But an order of magnitude can be gleaned from the fact that at the end of 1990 – a year in which Czechoslovakia spent far more than Hungary – the relative shares of expenditure were in the ratio of 3 to 2. In other words, Czechoslovakia had spent about 50% more than Hungary on the Project a year and a half after the first suspension of works. A year earlier, at the end of 1989, the amounts of money spent by the two Parties were roughly the same, although fluctuating exchange rates makes the calculation difficult. But by that stage Hungary had spent only about half of the total it was due to spend on the Project[31].

36. As to the financial interests, the first point to note is that these amounts were capable of adjustment and compensation. Loss of money as such is rarely an essential interest for the purposes of the defence of necessity. The whole point of compensation is to make up for such losses, the risk of which anyway is inherent in an investment. The ILC Draft Articles

30 Briefly outlined in HR, para. 1.93.

31 HR, paras. 1.94-1.98.

explicitly envisage compensation in situations of necessity[32], and Hungary was from the start prepared to negotiate such compensation within the framework of the Treaty[33]. It must be stressed that the impending damage to water resources and the environment was not the fault of Hungary alone as distinct from the whole totalitarian "gigomaniac" conception of the Project, to quote President Havel[34]. He seems to have made up the word "gigomaniac" specifically for the Project. So it was not a question of reparations for wrongful conduct but compensation for a failed investment. Czechoslovakia had a legitimate interest in compensation, and in any negotiations would no doubt have sought more than Hungary had initially implied was on offer. But negotiations over compensation never took place. Czechoslovakia simply proceeded to construct Variant C, ignoring Hungarian concerns over Nagymaros, insisting throughout on the whole Project, rejecting any proposals for an amendment to the Treaty. It did not say that the compensation offered was inadequate; instead it said there could be no going back. That amounted to a denial of the essential interest, not the invocation of a distinct interest which could, anyway, have been met by financial and other means.

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32 ILC Draft Articles on State Responsibility, Art. 35.

33 See e.g., HM, para. 3.103; HM, Vol. 4, Ann. 30.

34 HC-M, para. 16, citing HC-M, Vol. 3, Ann. 88.

(5) The Project had reached a point of no return.

37. Fifthly, it is argued by Slovakia that the Project had reached a point of no return, that so much planning and work had been done on it that termination and the return to the *status quo* was unthinkable[35].

38. The first point to note is that this argument has no application to Nagymaros. It was precisely the fact that substantive construction at Nagymaros was about to start, following the construction of the coffer dam, that induced Hungary to call for reconsideration of that part of the Project. It is true that a substantial amount of preparatory work had been done by Hungary at Nagymaros, amounting to about 30 per cent of the projected costs in that area. But up to that point some of that work was useful for other purposes such as flood control, and it certainly could not be said that the Project had reached the point of no return.

39. The position upstream was considerably more advanced, but a substantial amount of work remained to be done. For example, not a single turbine had been installed at Gab_íkovo, and neither of the shiplocks was ready. The Dunakiliti reservoir structure was essentially complete, and a good deal of the work Hungary was scheduled to do on Czechoslovak territory had been done[36]. But other alternatives could have been considered, such as operating Gab_íkovo in run of the river mode with a substantially reduced upstream reservoir and a substantially increased discharge to the original riverbed. It is true that such a system would not have produced peak power, but that was excluded once the real effects of constructing Nagymaros were appreciated, and the construction at Nagymaros had certainly not reached the point of no return. If Nagymaros had not reached the point of no return, then neither had the Original Project.

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35 See HR, paras. 1.93-1.99.

36 HC-M, paras. 7.20-7.21.

40. Some idea of what remained to be done upstream can be obtained from figures given in the Slovak pleadings, which suggest that between the end of 1989 and the end of 1992, the amount spent by Czechoslovakia on the Project and Variant C nearly doubled, from 13.8 billion to 24.3 billion Czech Crowns[37]. Bearing in mind that major works have been done on Variant C since the end of 1992, these figures suggest either that the Original Project was very incomplete at the end of 1989, or that Variant C involved massive amounts of new work. By contrast Slovakia argues (1) that the Original Project was at such an advanced stage of completion by then as to be unchangeable in its essentials, to have gone beyond the point of no return, and (2) that Variant C is very nearly the same Project as the Original Project. Given Czechoslovakia's own cost figures, these two statements cannot both be true. Either the Original Project was still very incomplete, or Variant C involved major additional expenditure, such as to constitute effectively a new Project – quite apart from the differences between unilateral diversion and joint control.

41. I would also point out that other international dams have been stopped at a much more advanced stage of completion, and appropriate arrangements made by way of compensation, as the cases reviewed in Appendix 5 of the Hungarian Reply show.

42. To say that the Project had not reached a point of no return upstream is not to say that the only option was to return Gab_íkovo to a cow pasture. There were other options, no doubt less profitable than the original peak power system over 200 km of river, but nonetheless worth investigation. Czechoslovak Minister Vavrousek produced a list of options[38], but Slovakia has produced no evidence whatever that any of them were seriously studied other

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37 HR, para. 7.21.

38 HM, paras. 3.123-3.124.

than Variant C. But that was a matter of choice, not necessity, and it was a choice from the making of which Hungary was excluded.

(6) There were procedural failures on the part of Hungary

43. Finally, Slovakia argues that there were procedural failures on the part of Hungary in suspending and terminating works, and Slovakia cites in this regard the provisions of the Vienna Convention relating to the suspension or termination of treaties. But there is no counterpart to these provisions in the ILC Draft Articles on State Responsibility. The Slovak argument confuses suspension or termination of works on a plea of necessity and suspension or termination of a treaty as such – a distinction Hungary was careful to make, and for good reason. Work suspended can be resumed; even contracts with private contractors can be renewed. Hungary was careful to maintain the sectors of the Project in good order throughout. It maintains Dunakiliti in good order today, as you will see. Procedurally, what is required by general international law is that a party invoking necessity give notice that it has done so at the time – which Hungary did – and that it be prepared to justify its action by giving reasons, and if necessary by appropriate recourse, by recourse to appropriate forms of dispute settlement – and Hungary was so ready. There is no substance in the procedural complaint Slovakia now makes on this ground. Professor Valki will deal on Thursday with the quite separate procedural arguments relating to the termination of the Treaty.

CONCLUSION

44. Mr. President, Members of the Court. For these reasons the various objections made by Slovakia to Hungary's invocation of necessity fail. In the very special circumstances of this case, having regard to the vital character of the interests at stake and the valid grounds for concern, Hungary was justified in its suspension and termination of works.

* * *

45. Mr. President, Members of the Court, that concludes Part II of the Hungarian oral presentation, which dealt with the 1977 Treaty and the Original Project. We now pass to a consideration of Variant C, the unilateral diversion of the Danube at Cunovo and the subsequent unilateral operation of the Gab_íkovo power station and associated elements by Czechoslovakia and subsequently by Slovakia.

46. Under the Special Agreement, the Court is asked, in substance, whether Variant C is lawful under the 1977 Treaty, other applicable treaties and general international law. That general question subsumes a number of particular questions which are clearly and squarely presented to the Court and which, Hungary, submits, are capable of clear and definitive answers. Let me summarize these sub-questions as follows:

(1)Was Variant C even approximately similar to the Original Project? Professor Nagy will show that it was not.

(2)Was Variant C likely to cause significant damage to Hungary and to the environment, and is it in fact doing so? In their third and, the Court may be relieved to hear, final presentation, my scientific colleagues will show that the answer is, yes and yes.

(3)When was Czechoslovakia committed to Variant C? Mr. Sands will show that it was, at the latest, by early April 1991, before the crucial intergovernmental negotiations of that year.

And – a question we will take tomorrow -

(4)Was Variant C unlawful under the 1977 Treaty, other applicable treaties and general international law in the light of the answers to the three previous questions?

Professors Kiss and Dupuy, tomorrow, will show that the answer is, without doubt, yes.

Thank you, Mr. President, Members of the Court.

The PRESIDENT: Thank you, Professor Crawford. I now call upon Professor Nagy.

The PRESIDENT: Thank you Professor Crawford. I now call upon Professor Nagy:

Mr. NAGY: Thank you

11. VARIANT C AND THE ORIGINAL PROJECT

1. Mr. President, Members of the Court. The Slovak case for the legality of Variant C rests on a single proposition. This is that Variant C is an approximate application of the Original Project. In other words, that it is for essential purposes the same thing.

2. My colleagues will show that there is no legal basis to this claim of approximate application. I will show that there is no factual basis to it. And this is true whether one refers to the physical differences between the two sets of installations and their mode of operation, or to the question who has control over the structures? Finally, I will discuss, whether the new structures indeed are reversible and temporary or rather permanent. In this respect they are similar. The Original Project was to be permanent. So is Variant C. Permanent but different.

3. In short, Mr. President, Members of the Court, Variant C is a new "activity" to use the expression of the Espoo Convention or the Convention on Co-operation for the Protection and Sustainable Use of the Danube River[39]. It is not an approximate application of the Original Project. It is not provisional at all.

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[39] HC-M, Vol. 3, Ann. 71.

I. IDENTIFYING THE ITEMS OF THE DISPUTE

4. Comparison of the Original Project and Variant C is made difficult by the fact that neither of them can be identified as a fixed set of installations operated in a well defined manner, with impacts assessed and recorded. Both the Original Project and Variant C have changed over time.

5. Hungary maintains that up to 1986 the term "Original Project" refers to the design of 1977-1978 as incorporated in the Joint Contractual Plan. After the modified investment schedule – adopted in 1986[40] as a consequence of criticism, incorporating some remedial measures – the term "Original Project" relates to the design and construction as agreed upon by the parties in the Project documents, including modifications adopted in the Joint Operational Group and approved at least at Government Plenipotentiary level.

6. Slovakia neglects the genuine design of the Original Project, which did not entail joint remedial measures and did not incorporate agreed national measures either, and replaces it with an imagined barrage system projected back into the past. Knowing that the Original Project, if built and operated according to the Joint Contractual Plan, would have had very harmful impacts on both sides, Slovakia augments the design on paper with suggestions, ideas, proposals which were never adopted by the Treaty organs. They were never made part of the Original Project – as Slovakia in parts of its pleadings concedes: "It may be that in certain cases written amendments had not been made to the Joint Contractual Plan"[41].

7. Some of the remedial measures read back into the Original Project by Slovakia – like the supply system of the side branches – were adopted as national measures outside the scope

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40 HM, para. 3.56.

41 SR, para. 11.10, fn 10.

of the 1977 Treaty. Others – the underwater weirs in the main riverbed, or the weekly increased discharges – were neither agreed upon nor materialized before this dispute arose.

8. Let me illustrate this with the manoeuvre of the Slovak Reply concerning the underwater weirs. Slovakia accuses Hungary of commenting an Original Project "that is not the Project as it evolved and would have been implemented in 1989 or 1992", then admits that "the final design and the location of the weirs have never been decided on by the parties".[42] Nevertheless it states that "the basic concept was agreed under the Gab_íkovo-Nagymaros Project. Reference to the weirs is even made in the 1977 Summary of the Joint Contractual Plan being translated as 'bottom sills'".[43]

9. The truth is that the Joint Contractual Plan Summary contains no reference to underwater weirs but makes a passing remark, according to which "[i]n the event of need bottom sills can be constructed in the Old Danube bed"[44] that is the reference. Bottom sills are *not* underwater weirs, they do not separate water bodies and do not produce "cascade" effect as underwater weirs do[45]. The reference to bottom sills and not to underwater weirs in the summary was not a translation mistake. However, even bottom sills were not agreed upon, and do not appear in the detailed plans.

10. Slovakia insists on retouching the photo of the Project by adding later developments or wishes as if they were part of reality. This exercise in rewriting history and mixing up facts and plans was typical for the political environment of the Project throughout its history from the fifties. The fact remains that none of the remedial measures so frequently mentioned in the

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42 *Ibid.*, at p. 22.

43 *Ibid.*

44 HM, Vol. 3, Ann. 24, at p. 326.

45 HC-M, paras. 3.104 - 3.105.

Slovak Pleadings were part of the Original Project of 1977. Slovakia admits this in seeking to neutralize the Bechtel report's critical remarks: the Slovak Reply warns that the Project investigated by Bechtel in 1989 did not "incorporate the latest series of modifications then being considered" and goes on to state that Czechoslovakia "expressed its willingness in the autumn of 1989 to agree to limit or exclude peak-flow operation".[46] In fact those modifications were never adopted, nor was peak operation ever limited or excluded.

11. So I suggest that the expression "Original Project" be reserved for those installations and operational modes which were agreed upon by the Parties in the Joint Contractual Plan or elsewhere. Alternatives deliberated by one of the Parties – even if communicated to the other Party – should not be seen as being incorporated into the Original Project.

12. As it is not easy to identify the installations and operational modes of the Original Project, so is the case with Variant C as well. Even Slovakia itself seems to be confused about its essence. The simple question, whether the hydropower station at Gab_íkovo is part of Variant C or not cannot be answered on the basis of Slovak statements.

13. Slovakia oscillates between two extremes:

(1) According to one extreme Variant C is understood for all practical reasons identical with the Gab_íkovo part of the Project or as a small, temporary technical addition to the Original Project. This first position is reflected in the following quote: "Czechoslovakia's 'provisional solution' was in all respects the same as the agreed Gab_íkovo section of the Project."[47]

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46 SR, para. 11.24.

47 SR, para. 9.73. See further SM, para. 7.16; SC-M, paras. 10.2 and 10.59.

(2)The second extreme denies the practical identity of Variant C with the upper sector of the Original Project. This new approach, excluding Gab_íkovo from Variant C dominated when the Slovak Reply was submitted. By then Variant C underwent considerable textual reduction: now it was "simply the provisional dyke and the new dam at Cunovo".[48]

14. Hungary's position on Variant C is clear: Czechoslovakia has unilaterally appropriated certain elements of a joint investment and incorporated them into a new project which required significant further construction in the value comparable to (although somewhat less than) the joint investment into the Gab_íkovo sector. The magnitude of this new endeavour is underlined by the fact that five years since 1992, the year of diversion have not been enough for its completion.

15. The physical description of Variant C has to take into account that it is built in two phases. Phase one was close to completion when Czechoslovakia unilaterally diverted the Danube in October 1992. Phase two is still under construction and now is expected to be accomplished this summer. None of the new elements I am about to list was designed, developed and realized on the basis of consultation let alone joint action with Hungary. Quite to the contrary, the affected downstream State was deprived of all relevant information concerning the works planned and under way, even after repeated requests[49].

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48 SR, para. 14.06.

49 HM, paras. 7.61 and 8.20.

II. DESCRIPTION OF ELEMENTS FORMING PART OF VARIANT C BUT NOT OF THE ORIGINAL PROJECT

16. The earlier Slovak position was that Variant C is simply the Original Project without Nagymaros and peak operation. But in fact at least five years of uninterrupted construction works and more than 8 billion Crowns (approximately 235 million USD) spent[50], have led to significant new elements (though not yet to completion of Variant C in its entirety):

17. The diversion of the Danube in 1992 entailed seven major interferences not envisaged by the 1977 Treaty. They constitute Phase one of Variant C (Illus. No. 11.3):

(1) permanent closure of the riverbed at rkm 1851.75[51], 10.5 km-s upstream from Dunakiliti, which would have been the site of diversion according to the Original Project;

(2) 80-90% reduction of the flow in the main Danube at a 10 km long section between Cunovo and Dunakiliti. This leaves the Hungarian floodplain a wasteland, without regular floods, but exposed to them in exceptional, unpredictable circumstances, preventing its economic utilisation;

(3) a new dyke cutting across the flood plain approximately 1.5 km north from the Slovak-Hungarian border;

(4) a new 10.5 km long dyke[52] at the right side of the downstream section of the reservoir which is now functioning as the prolongation of the headwater canal[53];

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50 HR, Vol.. 3, Ann. 77 at p. 373 giving 8 413 280 thousand KCS as the estimated total cost of water management and construction costs.

51 Gab_íkovo Part of the Hydroelectric Power Project Basic Characteristics by Dominik Kocinger, Ministry of Soil Economy, in: Gab_íkovo Part of the Hydroelectric Power Project, Environmental Impact review, Bratislava, 1995 at p. 8. See also HM, para. 3.186.

52 SM, para. 5.29 speaks of a 10.5 km long dyke, SM, annex 37 of a 11 km long one (at p. 356).

(5)a new bypass weir which diverts a fraction of the flow back into the main Danube bed[54];

(6)a new inundation weir which diverts flood waters with a spillway joining the by-passed main channel right at the border[55];

(7)the new intake into the Mosoni Danube[56] ;

18. The result of these large scale engineering works was a reservoir at Cunovo which is 30% *smaller* than the Hrusov-Dunakiliti reservoir would have been[57] and is operated in continuous mode, with regular – albeit limited – peaking.

19. After the diversion, construction continued and is still continuing with a view to build structures requiring even more investment. These new fixed installations forming Phase two of Variant C are the following (Illus. No 11.4):

(8)new dykes and fill-ups within the reduced reservoir, governing the water flow[58];

(9)a new 175 meter long and 24 m wide navigation lock[59] ;

(10)another new weir with three gates[60] ;

(11)a water slalom route for recreational purposes[61];

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53 SC-M, illustration No. CM-12.

54 SC-M, para. 8.52.

55 SC-M, para. 8.52. and illustration CM-15A.

56 SC-M, Illustration No. CM-12.

57 SC-M, para. 8.04.

58 Undocumented in the Slovak Pleadings but observed at the site.

59 Gab_íkovo Part of the Hydroelectric Power Project Basic Characteristics by Dominik Kocinger, Ministry of Soil Economy, in: Gab_íkovo Part of the Hydroelectric Power Project, Environmental Impact review, Bratislava, 1995 at p. 8. SM, para. 5.35.

60 *Ibid.*

61 Appearing on the video-film submitted by Slovakia.

20. These items of Phase two were more or less completed in 1996. One more is under construction, namely

(12)a new hydroelectric power plant consisting of five turbine units with capacity equal to one third of what the Nagymaros Power plant would have had[62].

21. Mr. President this is an impressive list of "provisional" and "reversible" technical solutions! But let me also highlight the elements of Variant C which are not reproducible on maps but which form the hard core of Slovak actions.

III. OPERATION AND CONTROL RIGHTS

22. The essence of a large capital investment is the control over it, including determination of the operational mode, the enjoyment of benefits, disposition of revenues, control over impacts. All these matters would have been under joint control according to the Original Project. None of them can be influenced let alone controlled by Hungary in connection with Variant C.

23. The whole new activity involving the Gab_íkovo power station was designed and realized by Czechoslovakia, and then, Slovakia, disregarding Hungary's repeated demands for information, consultation and adherence to bilateral and multilateral obligations. All the crucial issues of the operation of Variant C are decided exclusively by Slovakia. The shape of the reservoir, the daily water discharges as well as handling floods and ice, the production and consumption of electric energy, the management of international navigation are under sole Slovak control. The Joint Contractual Plan and the 1977 Treaty incorporated detailed

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[62] Gab_íkovo Part of the Hydroelectric Power Project Basic Characteristics by Dominik Kocinger, Ministry of Soil Economy, in: Gab_íkovo Part of the Hydroelectric Power Project, Environmental Impact review, Bratislava, 1995 at p. 8.

provisions on all these issues[63]. This was based on Article 9 of the Treaty which unequivocally expressed the essence of the community of interest. This Article provided:

> "1. The Contracting Parties shall participate in the use and in the benefits of the System of Locks in equal measure.
>
> 2. The output of the hydroelectric power plants shall be available to the Contracting Parties in equal measure and they shall participate in kind in equal measure, in the base-load and peak-load power generated and conducted from the said plants."

24. The careful balance of physical and legal control rights, set up by the 1977 Treaty gave Slovakia control over energy production and Hungary control over the water discharge régime. This control was to be exercised according to the set of agreements and decisions of the joint executive bodies. Now it has been replaced by the profit-maximizing aspiration and internal decision making of Slovakia acting alone.

25. The economic and environmental impacts of Variant C were also different from those likely to flow from the Original Project. In particular Hungary has not enjoyed any of the benefits promised by the 1977 Treaty but endured most of the costs envisaged by the Original Project and much more[64]. Hungary lost 80-90 % of the water flow, and gained not a single kwh of energy. Hungary is the victim of grave environmental damages caused by the operation of the system. For years Hungary was exposed to an increased risk of flood.

26. According to Slovakia the operation of Variant C enables a water supply system for the side branches[65]. This is true for Slovakia, but not for Hungary. The water intake structure at the Dunakiliti dam is located so high – in expectation of the damming there – that it can not serve as an outlet for water under Variant C. All the arguments of Slovakia relating to Hungary's unwillingness to emulate its good example in revitalizing the side-branches are

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63 HC-M, paras. 3.03-3.06.

64 HC-M, paras. 3.09 -3.10.

65 SC-M, paras. 7.84 and 8.26 read together.

false. Variant C has disconnected the side branches from the main riverbed. Mitigation measures require substantial unforeseen investment on the part of Hungary.

IV. VARIANT C IS NEITHER TEMPORARY NOR REVERSIBLE

27. Slovakia repeatedly speaks about the temporary and reversible character of Variant C[66]. If it admitted the final appropriation of the jointly designed and erected structures, and that the 8 billion SK new investment was not meant for the short term, then the sole explanation offered for the legality of Variant C – approximate application as a temporary solution – would vanish.

28. But what is the position in fact? Reversibility is intended to be demonstrated by declaring that "No structures were erected outside the territory envisaged by the Treaty"[67], "all weirs at the Cunovo complex may be opened"[68]. Harm from the operation is disclaimed in sweeping terms: "the results of over three years of operation of the Gab_íkovo section have been to bring only benefit to Hungary, not damage"[69].

29. Obviously the location of the new structures is irrelevant. Opening the gates of the weirs would result in having the Cunovo structures surrounded with water. Whereas in connection with Phase one this would have meant the corrosion of 20 inundation gates plus 3 bypass gates, with Phase two the situation is different. Now this simplistic approach would mean that the ship lock, the three new gates of the Phase two weir and the hydropower station would also submerge and the investment in facilities and the machinery would go down the drain. Nevertheless even this action would not restore the situation.

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66 Just a few examples: SM, paras. 5.65, 7.28, 7.44; SC-M, paras. 1.20, 6.17; SR, paras. 9.25, 9.76, 14.06.

67 SR, para. 6.09.

68 SM, para. 5.65.

69 SR, para. 9.75.

30. Hydrological conditions in the enlarged but divided reservoir emerging after the return to the Original Project would substantively differ from that designed as a single 60 km^2 unit. Sedimentation and flow patterns in the changed reservoir are not calculated. One can certainly state that at least as much work as done in connection with the PHARE project would once again be needed to optimise the management of the new large reservoir with two huge dykes separating its water bodies. Slovakia has not offered any environmental impact assessment or technical blueprint concerning the procedure of return to the original functioning. This simple "opening the gates" slogan is not only unrealistic and without hydrological foundation but also contradicts the findings of the trilateral Working Group of Independent Experts of 1992[70], which Slovakia incorrectly refers to as a proof for reversibility[71].

31. The Expert Group found that opening the gates would not be enough to return the water flow and handle floods but that the closure of the Danube ought to be removed, or a new bed opened[72]. This was under Variant C Phase one when Slovakia could still allege that the proof of reversibility was that a new riverbed "could have been [sic] constructed between the closure and the inundation weir"[73].

32. That option is not available any longer. The place of the new riverbed is now occupied by the new spillway weir, ship lock and hydropower plant. Slovakia does not offer any proof that reversibility is still there, after the construction eliminated the potential new riverbed. The action deprived the Expert Group Report from validity under present circumstances. So Variant C has become irreversible according to normal engineering management standards.

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70 HM, Vol.. 5. Part II, Ann. 14.

71 SM, paras. 5.65, 7.28.

72 HM, Vol. 5, Part II, Ann. 14, point 8.4.2. at pp. 468-69.

73 SM, para. 7.29.

33. This is not to say that the Hungarian submission calling for the waters of the Danube to return to their course and the river to be restored to the situation it was prior Variant C cannot be satisfied. Although Slovakia accuses Hungary of wishing to return to the *status quo ante*[74] the accusation is misplaced. Hungary suggests a step forward instead of backward. Not return to the Original Project is the goal, but a move forward in the direction of the sustainable use of the affected Danube section and its environment. It is up to the Parties to this dispute to find technical solutions for that.

34. Restoring the Danube could be a third project, after the Original and Variant C. It would not require more engineering talent than the first two, just a different approach to nature, natural resources and their future value.

35. Mr. President, Members of the Court, this brings me to the last point in this speech: What is the true intention of Slovakia? Does it offer any evidence that it is preparing for giving up Variant C either in order to return to the Original Project or to move forward to a mutually acceptable solution?

36. The discrepancy between the deeds and words is as large as the Project itself. Would a good faith litigant invest 5 thousand million SK into Phase two of Variant C if it really wanted to see this Court oblige the Parties to realize the 1977 Treaty and have Dunakiliti operate instead of Cunovo? Would the chief spokesman of the construction company former head of the Joint Operational Group, Engineer Oblozinsky, declare that the provisional solution becomes permanent after the completion of Phase two, if he did not intend to have it so?[75] Would a reasonable government build a hydropower station with one third of the capacity of the planned Nagymaros plant, just to have it flooded over in the year of its commencement of

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74 HR, 9.25, fn. 33.

75 SR, Vol. 3, Ann. 60. Engineer Oblozinsky in an interview with *Pravda*.

operation? Would a party demand to reserve the order of entry into operation of the different sectors as compared to the 1977 Treaty if her intention was not to have Cunovo control the system? Why else would Slovakia insist on having Nagymaros *before* transferring the damming site to Dunakiliti, when the Treaty envisaged operating Gab_íkovo with Dunakiliti for two or three years before Nagymaros joined the system?[76] Mr. President, Members of the Court. Unless you adjudge Variant C to be illegal and to be replaced with a water management system agreeable to both States in front of you, Hungary will continue to be faced with an unlawful "temporary" situation extending well into the third millennium. Thank you, Mr. President, Members of the Court.

Mr. President, could you call upon Professor Carbiener to introduce the Hungarian scientific account of the impact of Variant C.

The PRESIDENT: Thank you so much. Professor Carbiener.

[76] See details in HC-M, paras. 3.115-116.

M. CARBIENER :

12. LES IMPACT DE LA VARIANTE C

I. DELAIS DE MANIFESTATION DES CHANGEMENTS

Monsieur le Président, Messieurs les Juges, j'ai à nouveau le grand honneur de vous présenter très brièvement cette fois quelques considérations scientifiques. Il s'agit du problème des délais de manifestation des changements. Permettez d'abord quelques remarques introductives.

1. L' "hydrosystème" fluvial a été défini lundi comme une sorte de superorganisme dont les composants physiques, physico-chimiques, biologiques, s'agencent en compartiments interactifs et interdépendants. Toute modification d'un des composants se répercute sur l'ensemble. Mais le délai de manifestation de ces modifications dépend du degré d'inertie et de l'éloignement du compartiment considéré par rapport au lieu de la modification.

2. Ainsi, les eaux souterraines sont connues pour leur très grande inertie, qui s'explique par la mécanique des fluides. Par contre, les délais de réaction des systèmes biologiques sont très variables et dépendent du degré d'organisation de la communauté (biocénose) concernée. Les communautés aquatiques, par exemple, de structure relativement simple, réagissent en général vite, en tout cas plus vite que les communautés terrestres très structurées, telles les forestières.

3. La connaissance de ces principes est fondamentale si l'on veut éviter des erreurs graves d'interprétation concernant l'impact des grands travaux hydrauliques.

Examinons à titre d'exemple deux compartiments importants des hydrosystèmes : d'une pat les eaux souterraines et, d'autre part, les biocénoses.

I. Les eaux souterraines

4. La vitesse de progression des eaux souterraines des nappes alluviales des grands fleuves est de l'ordre de un à deux mètres par jour dans les secteurs où leur réservoir est formé d'alluvions grossières, comme c'est le cas du Rhin supérieur en Alsace-Bade ou du Danube dans la région du Szigetköz/Zitny Ostrov.

5. Si l'on compare cette vitesse à celle du courant dans le thalweg des fleuves correspondants, qui est de l'ordre de un à deux mètres par seconde, soit 100 000 fois plus élevé, on se rend compte de l'énorme différence des dynamiques respectives de la transmission des modifications de qualité dans des milieux aquatiques opposés. Il en résulte une très longue persistance des altérations et pollutions dans les eaux souterraines. Pour les polluants biodégradables c'est paradoxalement la pureté bactériologique habituelle de ces eaux qui freine les dégradations. Aussi, toutes les pollutions affectant les eaux souterraines, molécules biodégradables, comprises, persistent très longtemps, des décennies en général.

6. Citons à titre d'exemple un cas concret : un accident de la route qui s'est produit dans la plaine du Rhin en Alsace en 1970. Il a répandu sur le sol le solvant toxique tétrachlorure de carbone. Vingt ans après, la distribution d'eau potable a dû être suspendue dans une ville (Erstein) située à dix kilomètres seulement en aval du lieu de l'accident.

7. Ainsi, en général, après la mise en service d'un barrage ou d'une retenue, de longues années et le plus souvent des décennies s'écoulent jusqu'à ce que des symptômes généralisés de dégradation des eaux souterraines deviennent mesurables et reproductibles. Citons l'exemple de la mise en service d'un barrage hydro-électrique, toujours sur la plaine du Rhin, en amont de Strasbourg en 1964. Il a eu pour conséquence, on en parlait lundi déjà, la disparition de l'oxygène dissous de la nappe alluviale, mais elle n'a été détectée dans toute son extension qu'à partir de la décennie 1980, notamment par le constat de la totale disparition de la faune aérobie interstitielle très célèbre, caractéristique des nappes fluviales, et dont la découverte au siècle dernier, en alsace, dans les eaux souterraines du Rhin fit sensation sans le milieu scientifique[77].

8. De même, le labour en vue de la 'unealiculture intensive du maïs de vastes prairies inondables de la rivière Ill en Alsace à partir de la décennie 1970 ne s'est répercuté qu'à partir de la décennie 1990 par des altérations généralisées, quoique encore discrètes, du secteur correspondant de la nappe. Ces altérations concernent, entre autres, des teneurs inquiétantes en pesticides, ou des triazines, dépassant parfois largement les normes européennes de potabilité, ainsi que par la hausse continuelle des teneurs en nitrates dans ce secteur jusqu'ici particulièrement préservé[78].

9. Un dernier exemple est donné par la lente mais inexorable progression de la pollution de la nappe du Rhin d'Alsace par le chlorure de sodium (par le sel). En 40 ans, une zone salée allongée en tache d'huile s'est très progressivement étendue sur 50 kilomètres de grand axe, ceci suite au dépôt par les Mines de potasse d'Alsace de terrils de sel à la hauteur de Mulhouse

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77 Carbiener & Trémolières, *The Rhine Rift Valley Groundwater, Research & Management,* vol. 5, 1990, p. 375-389 et *Chemodynamics of Groundwaters, in Proc. Workshop Chemodynamics of Groundwater, Mont Sainte-Odile*, 1993, par. 13-13.9.

78 Takatert, *Etude sur la contamination des eaux souterraines par l'atrazine,* Rapport de D.E.A. de Toxicologie de l'Environnement, Université Louis Pasteur, Strasbourg, 1993, 60 pages.

en Haute-Alsace, si des mesures son faites un peu latéralement, en des points inadéquats, rien n'aurait pu être détecté[79].

10. Inversement et logiquement, les améliorations éventuelles sont également très lentes à se manifester. Citons un exemple, toujours dans la plaine du Rhin si vous le permettez, la pollution du fleuve et de sa nappe par le phosphore. En 1986, la Suisse introduisit une disposition légale d'interdiction du phosphore dans les lessives ménagères (les produits de lavage). Dès 1987, l'année d'après, on constata une chute de la moitié de la teneur en phosphore de l'eau du Rhin. La végétation aquatique des eaux de surface y répondit par des modifications spectaculaires dès cette année-là. Par contre, huit années plus tard, en 1994, aucune amélioration n'a encore pu être constatée dans la nappe riveraine toute proche du fleuve canalisé, fortement polluée elle aussi par le phosphore infiltré depuis le lit du fleuve, exactement selon les mêmes modalités que celles que nous avons montrées lundi pour le mercure - c'est strictement pareil; ni l'analyse de l'eau, ni celle de la végétation des bras qui drainent cette nappe n'ont permis de détecter de changements[80].

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79 Krause & Carbiener, *Chloridkonzentration in den Gewässern in der Oberrheinebene und ihre Randgebirge*, 1975, Erdkunde, 29, p. 267-277.

80 Carbiener, Trémolières, Muller, «Végétation des eaux courantes et qualité des eaux», *Acta botanica gallica*, 1995, 142, p. 514-515.

II. Les ecosystems

11. On a vu que les délais de réponse des écosystèmes à un changement de paramètre déterminant dépendent de leur structure. Aussi, ces délais se distribuent-ils sur une échelle considérable, allant de quelques jours à un, voire plusieurs siècles. Examinons quelques exemples très liminairement. r

12. **Premièrement** : délai de réponse très court : échelle de l'ordre de quelques jours à une année.

Le record de rapidité de réaction est celui des communautés planctoniques, structure très fruste. Elles réagissent en quelques jours à des variations d'alimentation en fertilisants, d'éclairement, de température, de vitesse de courant. La végétation supérieure des plantes aquatiques se modifie quant à elle, dans un délai de l'ordre de l'année, on vient de le voir, en cas de changement de qualité de l'eau. Les ensembles d'invertébrés aquatiques macroscopiques, macrobenthos comme on le dit parfois, manifestent en majeure partie la même réactivité. Du côté des biocénoses terrestres, ont peut citer les communautés pionnières des plantes annuelles des bancs d'alluvions, citées lundi aussi, dont la réactivité est comparable, délai de l'année.

13. **Deuxièmement** : délai de réponse court : trois à cinq ans.

C'est le cas, par exemple, des ensembles de plantes vivaces pionnières des bancs d'alluvions qui se localisent au-dessus de la frange des plantes annuelles. C'est le cas aussi de la plupart des écosystèmes des zones humides, bas marais et prairies humides, qui seraient soumis à des changements de niveau des eaux souterraines.

14. **Troisièmement :** délai de réponse lent : de l'ordre d'une à plusieurs décennies.

Citons ici un exemple concernant les poissons, déjà évoqué le premier jour. Dans un bras du Rhin déconnecté du fleuve par la canalisation de 1967, la perte de débit, donc de dynamique, a provoqué un dépôt important de sédiments fins, et ces sédiments fins se sont progressivement pollués cumulativement par le phosphore infiltré à partir du Rhin canalisé. Il s'ensuivit une lente destruction de la flore supérieure, remplacée par la prolifération d'algues et la diminution progressive de la biomasse des poissons qui aboutit, à partir de 1993, à la quasi totale disparition de poissons; un délai de plus de 25 ans s'est donc écoulé avant la destruction de la faune de poissons suite au changement.

15. Citons aussi un exemple concernant la végétation. Dans ces mêmes délais, c'est la disparition évoquée lundi aussi des forêts alluviales à bois tendre (forêts de saules, forêts de peupliers, riveraines. En quelques décennies après suppression des dynamiques de crues[81] c'est le cas.

16. **Quatrièmement et dernièrement :** délais de réponse très lents, de l'ordre du siècle.

C'est le cas des écosystèmes forestiers les plus complexes comme par exemple les désormais si célèbres forêts alluviales à bois dur, si hautement originales. Elles se dégradent par évolution lente vers des forêts d'un type beaucoup plus banal, après suppression des inondation et stabilisation du niveau des eaux. Mais le processus est extrêmement lent, discret et s'échelonne sur siècles et plus, et permettait ainsi d'arriver à la conclusion.

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81 Carbiener, Dillman, Dister, Schnitzler, «Variation de comportement et vicariances écologiques d'espèces ligneuses en zone inondable», Colloque Comité National Français de Géographie, Strasbourg, 1986, p. 237-259; Carbiener, Schnitzler, Walter, «Problèmes de dynamique forestière et de définition des stations en milieu alluvial», Colloque IAVS Nancy, 1985, Cramer, Berlin-Stuttgart, p. 655-686

17. La thèse qui stipule que «si des dégâts aux écosystèmes ne peuvent pas être observés à court terme, il ne se produirait pas de dommages à long terme», n'est absolument pas fondée.

Permettez, Monsieur le Président, puis-je vous prier maintenant d'appeler M. Klaus Kern à faire son exposé.

The PRESIDENT: Dr. Kern, I think it might be better if we take our break now so that we do not interrupt your presentation and we shall return in about ten minutes. Thank you so much.

The Court adjourned from 11.25 to 11.50 a.m.

The PRESIDENT: Please be seated.

Dr. KERN:

II. OBSERVED IMPACTS ON FLOOD SECURITY AND HABITAT DEGRADATION

18. Mr. President, Members of the Court, I will now address some of the many impacts of Variant C which are already observable. Doing so we have to keep in mind that many serious impacts may only show up in detail, as explained by Professor Carbiener.

19. This section is divided into two parts. I will begin by outlining the starting degradation of habitat and the associated threat to biodiversity. Professor Wheater will conclude the science presentation and focus on the impacts on water resources. A discussion of the effect of remedial measures to mitigate damage will complete both the biodiversity and water resources presentations.

20. The starting point is the dramatically reduced residual flow left in the Danube and the associated drop in water levels. This is an entirely predictable result of taking 80-90 per cent of the water out of the Danube and key to understanding the damage to biota observed in the last four years. As described yesterday, the essential element of a floodplain ecosystem is the flow rate of the river and the rise and fall of water levels causing seasonal inundations, as well as groundwater fluctuations far beyond the dykes. Since the diversion, Hungary has been entirely dependent on Slovakia's release of the water into the Danube over this reach (Illus. No. 14.2). If we look at the flows in the Danube measured at the Hungarian station Rajka below Cunovo since the diversion we see four significant variations from the natural flow[82]:

- First, only about 10-20 per cent of the natural flow has been released into the river;
- Second, the variation in the rate of flow is very small compared to the natural variability;
- Third, only for the highest floods do larger flows reach the natural riverbed; and
- Finally, no floods have inundated the floodplain.

Since the 1995 Special Agreement the seasonal variation has increased marginally, but is still far below the natural range.

21. How does this diminished flow régime imposed by Slovakia impact on the environment? The water level in the main channel dropped by 3-4 m compared to previous average values (Illus. No. 14.3). On average, flow velocities were cut in half, but in the 10 km-reach above the conjunction with the tailrace canal the decrease is even greater[83]. The

82 HR, Vol. 3, Ann. 1.

83 *CEC Report on Temporary Water Management Régime* (Dec. 1993), HM, Vol. 5 (2), Ann. 19.

largest discharge released by Slovakia into the old riverbed since October 1992 was below the level at which side-branches received water. Most of the branch system in the upper and middle Szigetköz was almost totally without replenishment, drying out or becoming stagnant, as you saw on the video[84]. Inundations — which are the principal characteristic element of the floodplain — have been eliminated. Most of the flood flows shared with the old riverbed did not even reach mean annual flow levels.

22. The short-term consequences of the artificial flow régime have been felt particularly by the aquatic habitats of the main Danube bed between Cunovo and Sap, by the side-branch system in the active floodplain, and by the branch systems in the flood-protected area behind the dykes in the Szigetköz.

23. Fish are generally regarded as a good indicator for biological response after disturbance. Before October 1992, an extraordinarily rich fish population of 57 species was recorded by fish biologists in the main channel (Illus. No. 14.4)[85]. It included rare submontane species, which require strong current in deep and cold water with a gravel bed — habitat conditions which existed in the Szigetköz reach of the Danube before October 1992. Among these were several red-list species protected on a national and international level like the Bern Convention (e.g., *Gobio kessleri, Zingel streber, Gymnocephalus schraetzer, Gymnocephalus baloni*). One of the perches spawning in this reach was not known before the year 1974 when it was discovered as a new species by Slovak fish specialists.

24. The aquatic fauna in the main channel, especially fish, were significantly affected by Variant C in four ways:[86]

84 HM, Vol. 2, Photos 13-28.

85 HM, Vol. 1, App. 2.

86 HC-M, Vol. 2, Chap. 4.5.2.

- first, clean gravel sediments, suitable for spawning, were covered with fine silt, especially in the backwater reaches. In the Bagoméri branch system, for example, a deposition of over 400,000 m^3 of silt was measured within the first two years of operation (1992-1994)[87].

- second, there was deterioration in habitat conditions for rheophile fish[88], in other words slower current, less turbulence, higher temperature and nutrient level, lower oxygen content, danger of eutrophication;

- third, the Cunovo dam and the reservoir as well as the Gab_íkovo power station created an insurmountable barrier for migrating fish and the Slovak authorities did not provide a fish ladder; and

- fourth, and maybe most importantly, the main channel became isolated from its side-branches, closing off temporary habitats for many species[89].

25. Sampling after diversion confirmed the ecological destruction of the affected Danube reach: only one of the rare fish species could be found in this reach any more. More importantly, 14 rheophile fish species typical for this reach could no longer be found[90]. This change in species' composition is consistent with Slovak observations[91] and confirms a distinct degradation of an important aspect of biodiversity.

26. Slovak findings show that the resident Russian sturgeon *(Acipenser gueldenstaedti)* has not been recorded in the Danube near Bratislava since the diversion. The wild carp

87 Data taken from Rákóczi, L. & Sass, J. (1995) *Changes of the Channel of the Hungarian Upper Danube and of the Side River Arms of the Szigetköz upon putting the Dunacsúny I. River Barrage into Operation*, Vízügyi Közlemények, Vol. 77, pp. 46-70 (in Hungarian).

88 See Glossary: Rheophile = adapted to flowing rather than stagnant water bodies.

89 HM, Vol. 1, App. 2.

90 HM, Vol. 1, App. 2.

91 Cerny, J. (1995), "Monitoring of Ichthyoncoenoses in the Slovak Part of the Danube Inland Delta before and after Operation Start of the Gab_íkovo Barage System", Faculty of Natural Science, University of Bratislava (Ed.), *Environmental Impact Review*, pp. 203-210.

(Cyprinus carpio) used to be quite common in Southern Slovakia, but is now restricted to a few locations in the main channel. In 1993, only one fish out of more than 1,500 caught at Gab_íkovo as part of a research programme was identified as a wild carp[92]. The leading Slovak ichthyologist concluded at an international conference in 1994 that "The extinction of the resident form of the Russion sturgeon and the wild form of carp is expected within a decade, because of the damming of the Danube at Gab_íkovo in 1992 and subsequent interruption of migration routes and access to spawning grounds."[93]

27. The situation is not much better in side-branch habitats. These play an important role for many species living in the main channel. They also encompass a variety of different waterbody types providing suitable living conditions for numerous other species[94]. Before the diversion, some of the side-arms were permanently connected to the main channel, enabling fish to migrate back and forth at will. This contributed to a high diversity of species. Other floodplain water bodies were isolated for most of the year and had stagnant water. Varying environmental conditions in these floodplain habitats resulted in a large diversity of site conditions. The resulting fish fauna comprised over 50 species in the active floodplain and 23 in the wetlands beyond the dykes[95]. This included, for example, the European mudminnow *(Umbra krameri)*, a very rare fish strictly protected by the Bern Convention[96].

28. After the diversion most of the side-branches dried out or were reduced to small water bodies. Some important habitats experienced irreversible damage. An

92 Holcik, J. (1996) "Vanishing Freshwater Fish Species of Slovakia", in *Conservation of Endangered Freshwater Fish in Europe*, A. Kirchhofer & D. Hefti (Eds.), Birkhäuser Verlag, Basel, pp. 79-88.

93 *Ibid*., p. 86.

94 HC-M, Vol. 2, Chaps. 4.3.2.2 and 4.5.2.

95 HM, Vol. 1, App. 2.

96 *Ibid.*

extraordinarily large population of the mudminnow was completely destroyed after the total desiccation of the Lipót side-branch[97].

29. Living conditions for the flora and fauna of floodplain habitats are controlled by fluctuating surface and groundwater levels and seasonal inundations. The dynamic flow régime in the area was characterized by groundwater fluctuations of up to 4 m close to the river, and still 1.5 m at 4 km distance as seen on the chart (Illus. No. 12.5). After the diversion, groundwater levels dropped by up to 3.5 m in the active floodplain, and by half a metre in large parts of the flood-protected area of the Szigetköz[98]. The dynamics of surface water levels collapsed, and this is reflected in the groundwater régime. Close to the river, fluctuations were reduced to about half a metre, with a few short peaks of up to 1.6 m. Measurements of groundwater levels further away from the river showed a similar reduction in dynamics[99]. There is in effect no longer a flood régime.

30. This has resulted in a transformation of site conditions for vegetation in large areas. Along the Danube potential sites for flooded-forest and aquatic-marsh vegetation, blue colour on the chart, no longer exist (Illus. No. 14.6). Potential areas of wet forests and meadows, green colour on the chart, are reduced in size[100]. Quite simply, the floodplain ecosystem has lost its inherent character.

31. Professor Carbiener explained why the decline of valuable wetland forest communities may take many years, sometimes decades. But even against that backdrop, early measurements of growth parameters of indicator species show a distinct degradation

97 HM, Vol. 1, App. 2.

98 HC-M, Vol. 2, Chap. 3.4.3 and Vol. 5, Plate 3.13.

99 HM, Vol. 1, Appendix 3, Fig. 12 (updated); Joint Annual Report of Environmental Monitoring in 1995 (according to the Special Agreement of April 19, 1995).

100 HR, Vol. 2, plates 5.2 and 5.4

of the wetland vegetation. Samples of the tall plantain, for example, had considerably smaller leaf areas and shoot heights in the impact area than those of undisturbed plots (Illus. No. 12.7). Significantly decreased water supply caused smaller leaf areas in hardwood and softwood riparian forest stands. Compared to pre-dam conditions, the reduction in leaf area amounted to nearly 30%. Common reed grew up to 25% shorter on disturbed versus undisturbed control plots. The leaf size of the yellow waterlily *(Nuphar lutea)* was up to 75% smaller in the impact area than elsewhere. And more generally, an invasion of drought-tolerant weed communities, such as the allergenic ragweed has been observed[101].

32. These observations indicate the beginning of a significant degradation of floodplain vegetation communities. It amounts to "significant damage" to biodiversity by any standard, including that of the 1992 Rio Convention. Recent monitoring results confirm that some protected plant species have already disappeared entirely from the active floodplain.

33. The same is true for the wetland fauna which is closely related to physical habitat conditions and plant communities. Amphibians, for example, need specific site conditions for reproduction during a particular time period of the year. These are no longer available. Slovak monitoring of floodplain areas along the diversion confirms the tendency towards desiccation, the retreat of typical floodplain species and an invasion of very common widely-occurring "eurytopic species ..."[102]. These are unambiguous indications of a degradational process.

101 All data from HR, Vol. 2, Chap. 5.2 and HR, Vol. 3, Ann. 5.

102 SR, Vol. III, Chap. 5, Section 2 ("Changes of Fauna..."), Subsection 2.2.2 ("Monitoring Sites in the Area of the Diversion"), p. 103.

34. From the observed changes in habitat conditions, from early measurements of indicator species, as well as from experience with impacts of similar disturbances elsewhere - as discussed by Professor Carbiener on Monday - it is clear that a large part of the Szigetköz area will experience a long-term degradation under the present water régime. Biologists have cause to fear that many endangered flora and fauna species which are protected in Hungary according to the Bern Convention, the IUCN Red Data Book or the Corine List will cease to exist in this area[103]. These consequences represent a serious loss of biodiversity in an internationally recognized wetland. They are accompanied by significant threats to water resources, as Professor Wheater will explain later.

Impacts of Remedial Measures

35. I will now briefly consider the impact of the remedial measures of which Slovakia makes so much. The issue is this: can it be shown that irrigation systems in the floodplain and weirs in the main channel can preserve the existence of rare and protected plant and animal species endangered by Variant C? Final conclusions are not possible at this stage, but reasonable predictions can be based on observed habitat changes and experiences elsewhere.

36. The need for additional water was recognized immediately after the diversion. Irrigation of the floodplain with a few cubic metres per second available from the Slovak reservoir and supplemental pumping, as seen on the video, were tried in the first years. This produced virtually no effect. It was then decided to construct a diversion weir, or a so-called underwater weir, at Dunakiliti in 1995 to raise the Danube water level to floodplain levels (Illus. No. 14.8). It was thought this would channel much more water to the now interconnected branch system. Of course, it was known that these emergency

103 HC-M, Vol. 4(2), Anns. 17 and 18.

measures could not restore or substitute for the natural flow régime with its regular seasonal floods. It was because the variation in flow is essential for the region that Hungary insisted that the diversion weir was strictly temporary.

37. Slovakia proposed a series of weirs in the old riverbed to increase adjacent groundwater levels[104]. Since one such weir has now been constructed as an emergency measure, its impacts can be studied. The substance and effect of such a weir by no means resemble, I quote, a "natural ford or sandbank" as suggested by Slovakia (Illus. No. 14.9)[105].

As you will see on your visit, the weir at rkm 1843 consists of a rock-filled dam across the riverbed about 4 m high, measured from the bed level, raising water levels by more than 3 m. It has caused average flow velocities to drop to half a metre per second or less over the entire upstream reach, contrasting with effects predicted by Slovakia[106].

38. The weirs also cause negative impacts on the abandoned channel to sediments. The Cunovo Reservoir retains all coarse particles transported by the Danube, but a considerable part of the suspended sediment load enters the power canal and the old riverbed below Cunovo and settles in backwater reaches characterized by low flow velocities (Illus. No. 14.10). Above the weir, average grain sizes dropped from gravel with a mean diameter of 31.4 millimetres to silt with a mean diameter of only 0.04 millimetres[107]. This occurred within just one year after its construction and is quite similar to the process observed in the backwater reach above the confluence. These fine deposits cover excellent spawning areas

104 SC-M, paras. 4.34, 7.44; SR, para. 12.45.

105 SC-M, para. 7.44.

106 SR, Vol. 2, p. 68 (7 + 9).

107 Hungarian monitoring.

for fish – an important deterioration of habitat conditions, and predicted in the Hungarian Counter-Memorial[108].

39. The diversion weir has therefore added to the problems caused by Variant C. The construction of more weirs would inevitably eliminate the last refuge of fish species characteristic for this reach, as predicted by Hungary[109].

40. The impoundment behind the weir was used to channel 80-100 m^3/s through the Hungarian branch system during the summer. Instead of restoring the diversity of waterbodies, the supply system created a small uniform river in the floodplain slowed by cross dykes but without a flood regime. Surface water levels were raised to a permanent flood level and constant flow was maintained. The flow velocities, water temperature and chemical properties of the side-branch channels more or less resemble the habitat conditions of the abandoned main channel. The pre-existing diversity of waterbody types in the floodplain has been considerably reduced at the expense of the diversity of waterplants and other specific groups of flora and fauna[110]. Fish sampling in the branch system indicates a shift to common rheophile species. Rare and protected plant species are being lost in this area.

41. Our view of remedial measures may differ from Slovakia's, which is delighted to see the Slovak branch system "become comparable with the fish production in ponds of second class" due to an increase of economically-preferred species[111].

42. It is now clear that the weirs and the side-arm supply system will not sustain site-specific aquatic flora and fauna. Will they help to save the wetland vegetation? Slovakia

108 HC-M, Vol. 2, Chapters 2.5, 4.6 and HR, Vol. 2, Chapter 7.

109 HC-M, Vol. 2, Chapter 4.6 and HR, Vol. 2, Chapter 7.5.

110 Joint Annual Report of the Environmental Monitoring in 1995 (according to the Special Agreement signed on April 19, 1995), Part 4.

111 SR, Vol. 2, p.71 (4).

has acknowledged[112] that the dynamics of groundwater fluctuation and seasonal inundations are essential elements for the vitality of a floodplain ecosystem. Water level changes in wells upstream of the new weir at rkm 1843 show, however, that in the first years groundwater fluctuations were reduced to about half of pre-dam values (Illus. No. 12.11). After weir construction a further significant reduction of the water level variation was observed, bringing the range to less than one-third of the pre-Variant C size[113]. The chart shows that impoundment above the weir produced permanent groundwater levels corresponding to peak flood levels of pre-dam years. With such a régime, the wetland vegetation, used to the normal dynamics of the natural river, cannot be preserved in the long term. Neither will the specific floodplain fauna be able to survive.

43. Two more things need to be said about weir construction in the Danube.

—First, according to the Joint Contractual Plan, the abandoned Danube bed was to discharge the 100-year flood without using the power canal[114]. The construction of weirs with a crest height of 4-5 m would considerably restrict the discharge capacity of the main channel. It could raise flood levels in the floodplain above the designed level of the dyke system. In addition, the construction of further weirs in the Danube channel could hamper the safe discharging of floating ice which must be released from the reservoir in winter[115].

—The second point is this: the construction of weirs interferes with navigation. A large shiplock was built at Dunakiliti as well as at Cunovo to allow

112 SR, para. 12.38.

113 Joint Annual Report of Environmental Monitoring in 1995 (according to the Special Agreement of April 19, 1995).

114 HC-M, Vol. 2, Chapter 2.4.4.

115 HC-M, Vol. 2, Chapter 2.4.4.

> commercial navigation in case of emergency, as you will see in your visit. The construction of weirs of 4-5 m crest height above the riverbed is not compatible with navigation, even if the full discharge were provided.

44. None of these problems has been addressed by Slovakia. There appears to be no study — not even at the prefeasibility level — which deals with these problems.

45. A final point relates to the impact of Variant C on the riverbed below the confluence with the power canal. At that point a dramatic erosion of the riverbed has been observed (Illus. No. 12.12). Scour holes of 2-3 m in depth occurred within two years of the diversion — and the process continues and affects the riverbed with erosion and deposition for a further 4 km below the confluence. Continuous deepening of the riverbed endangers adjacent wetlands by reducing water levels — a process which Slovakia claimed would be reversed in the upper section by Variant C[116].

46. Why is this erosion and deposition occurring? One reason is the retention of almost all bedload in the Cunovo reservoir. It is well known from other rivers that erosion of bed sediments is likely below a dam[117]. For Variant C the process is magnified by current peak operation at Gab_íkovo (Illus. No. 12.13). The chart shows the discharge measurements of the river gauge at Vámosszabadi, just below the tailrace canal. Peak operation shows a distinct daily pattern: average fluctuations are about 400 m^3/s. This corresponds to an 80 cm fluctuation in water level. Occasionally larger peaks in flow have been observed.

This kind of peaking is similar in magnitude to that permitted by interstate agreement within the impounded sections of the Upper Rhine and the Rhône but with essential

116 SM, paras. 5.10, 5.11.

117 HC-M, Vol. 4 (1), Ann. 7.

differences: here it is being discharged to a free-flowing river section and without the agreement of Hungary or even any notification.

47. What does this mean for the riverbed? There is the full natural discharge deprived of its bedload, and in addition, there are daily flow peaks of several hundred cubic metres per second above the natural level. Higher discharges, however, considerably reinforce erosion of bed sediments, thus accelerating degradation of the bed (Illus. No. 14.14). Part of the sediment is deposited just below this reach, and complete rearrangement of riverbed cross-sections has been observed near Nagybajcs. This causes new obstacles for navigation, sharply contrasting with one alleged objective of the Project, namely to improve navigation[118].

48. Mr. President, Members of the Court, destruction of valuable habitats, acceptance of the loss of numerous red-list species, a trial-and-error approach in terms of mitigating damage, and on top of this, peak operation discharges into the free-flowing river section shared by both states. These are the characteristics of Slovakia's Project, Variant C.

49. I would like to thank you for your attention, Mr. President, and would ask you to call on Professor Wheater, who will address the impacts of Variant C on water resources. Thank you.

The PRESIDENT: Thank you, Mr. Kern. Professor Wheater.

Professor WHEATER:

118 SM, para. 2.82.

II. OBSERVED IMPACTS ON WATER RESOURCES

50. Mr President, Members of the Court, in my earlier presentation I have focused on anticipated impacts. As Slovakia has so frequently stated, notwithstanding its differences from the Original Project, Variant C provides an opportunity to observe actual impacts. It is to these that I now turn.

51. By way of preliminary observation I would remind you that there remains a serious problem with the Slovak approach to monitoring. As the Court has heard from Professor Carbiener, many of the most important impacts are expected to be over the long-term. We would not expect significant changes on water-related issues to be detectable within the space of just a few years, and certainly not by conventional monitoring programmes. Even in the face of this, however, Hungarian and Slovak data confirm that Variant C has already had significant short-term impacts. The data also point to the first signs of the predicted long-term changes.

52. In presenting the impacts of Variant C, I will first consider the situation after the diversion of the Danube but before the construction of the so-called "underwater weir" and associated remedial measures, and then secondly, the impact of those remedial measures.

53. Time limitations preclude a comprehensive discussion of impacts. I will focus on a few of the key aspects only: groundwater levels, groundwater quality and aspects of surface water quality.

54. Beginning with groundwater levels, Dr. Kern has explained that the loss of water in the main river bed has been accompanied by a decrease of surface water levels of several metres. The Danube channel is no longer the primary source of groundwater recharge. Regional groundwater flows are now dominated by recharge from the Cunovo reservoir,

and, to a lesser extent, the side-arm branch system. Groundwater flows discharge to the main river bed, which now acts as a drain.

55. Summarizing the impact on groundwater levels is not simple, due to the time-varying response of the natural groundwater régime and changes to the water management practices. The Hungarian Counter-Memorial presented a summary of the impact for "average" Danube flow conditions and for "high flow" conditions based on selected periods of comparable Danube flows, as shown here (Illus. No. 12.15)[119]. It can be seen, for example, that close to the Danube the decrease of groundwater levels exceeds three metres for high flow conditions. The corresponding areas for which decreases of a given range occurred were also presented[120]. Thus, for example, for the high flow conditions, over 20 square kilometers suffered decreases of in excess of 3 m, and an area of nearly 350 square kilometers had significantly reduced groundwater levels. The loss of variability in groundwater levels, which is most marked in the active flood-plain and under high flow conditions, has been described by Dr. Kern.

56. Associated with the reduction of groundwater levels is the loss of the natural sub-irrigation, both for the natural riparian and flood-plain vegetation, and for agriculture. The HC-M[121] described the areas affected, comparing the growing seasons of 1990 and 1993. Over 120 km^2 suffered a reduction in water availability; nearly 40 km^2 suffered a total loss of sub-irrigation supply. A more recent estimate, comparing May 1992 with May 1995 is that 146 km^2 has reduced water availability[122].

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119 HC-M, Vol. 5, Plate 3.13.

120 HC-M, Vol. 2, Table 3.6.

121 HC-M, Vol. 2, Table 3.7.

122 Hungarian monitoring.

57. These major changes to groundwater levels following the diversion are as predicted. I turn now to groundwater quality.

58. Changes in recharge patterns have serious implications for groundwater quality. Since the diversion the major recharge sources have become the Cunovo reservoir and the side-arm branch system. I will consider first the reservoir, and then the side-arm system. Both are very problematic.

59. As explained earlier, long-term changes are expected in the quality of recharge from the Cunovo reservoir. These depend on sediment accumulation in the reservoir, the degradation of that sediment, and then the slow processes of transport into and through the groundwater aquifer. These processes will take many years to occur and to be observed, as demonstrated from Altenwörth and the Rhine.

60. These matters obviously cause Slovakia great difficulty. Its pleadings identify Hungarian concerns for sediment degradation and its impact on water quality but claim that "It is far from clear what Hungary means."[123] In the same pleadings it is said categorically by Slovakia that "There is no basis for the expectation of anaerobic water recharge (i) from the reservoir, or (ii) from the side-arms."[124] But later in the same volume the PHARE interim report clearly and concisely explains the relevant processes and confirms Hungarian concerns[125]. It says:

> "An increased sedimentation in certain areas within the reservoir will affect the amount of infiltrating water. In addition, an increased sedimentation of fine particles will also increase the load of organic matter to the reservoir bottom. This organic matter will degrade under consumption of oxygen which may change the conditions in the reservoir sediment from being oxic to being anoxic."

123 SR, Vol. 1, para. 12.12, p. 285.

124 SR, Vol. II, p. 43.

125 SR, Vol. II, Part II, p. 166

61. This is the correct scientific interpretation. It directly contradicts the main statement of the Slovak case. It appears that the presenters of the Slovak case do not understand the science.

62. Concerning observation of these processes, Hungary is not able to study the effects in and adjacent to the reservoir on the Slovak side. Slovakia claims that conventional monitoring programmes are sufficient to detect the onset of long-term change, and seeks to reassure the Court. Concerning evidence of long-term change in groundwater quality, based on "literally hundreds of different sites", "Slovakia's position is that from the most closely researched scientific point of view, there are no significant changes - small or large - in the monitoring results."[126] And yet if you turn to the second volume of the Slovak Reply you will find described a detailed field investigation of groundwater quality changes adjacent to the reservoir[127]. Upon reading this text we find that the data show "slow denitrification ... and reductive dissolution of Mn-oxides". In other words, confirmed evidence of the creation of anaerobic conditions and the release of manganese. This describes the first stages of precisely the processes of pollution which are of grave concern to Hungary, and which Slovakia denies[128].

63. The reservoir data are consistent with the early stages of groundwater quality deterioration, as predicted. Similar concerns arise with the side-branch system. Detailed investigations have been carried out in Hungary. They confirm Hungary's original - and current - concerns.

64. In our pleadings we presented results on groundwater quality from 62 wells in 11 well groups along the banks of side-arms and canals (Illus. No. 12.16). By way of

126 SR, Vol. I, para. 11.20, p. 272.

127 SR, Vol. II, Part II, pp. 141-142.

128 SR, Vol. II, p. 43.

example this diagram[129] shows that for most of the sites, chemically reducing conditions occur. For all sites, maximum levels of ammonium exceed EC guide levels for drinking water. At 9 of the 11 sites, mean levels of iron exceed EC maximum allowable concentrations, and mean levels of ammonium exceed guide levels. Arsenic levels exceed WHO limits at several wells. In the vicinity of the side-arm channels the changing patterns of groundwater recharge have replaced infiltration of high quality Danube water with recharge of seriously degraded water quality. This poses a serious threat to drinking water. Slovakia argues that such problems will disappear with increased surface water flows associated with remedial measures[130]. Hungarian evidence shows, however, that even with high flows in clean gravel bed channels, reducing conditions persist[131].

65. The degradation of groundwater quality is further illustrated by measurements of groundwater quality alongside the main Danube channel. Data presented in the H C-M showed the high quality of aerobic groundwater recharged by the Danube, as observed in 1991[132]. As indicated in the HR these results have been updated[133]. They show that the Danube channel is now a drain, and the groundwater sampled in the former river bed, recharged from the side-branch system, is of highly degraded quality[134]. A reduction of dissolved oxygen has been accompanied by increased manganese and ammonium, exactly as anticipated.

66. Concluding this presentation on observed impacts before remedial measures, I now consider surface water quality. As noted earlier, the expected direct effects of the Cunovo

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129 Figures 3.14, 3.15, 3.16, HC-M, Vol. 2.

130 SR, Vol. I, para. 12.24, p. 294.

131 HR, Vol. 2, p. 83.

132 HR, Vol. 2, pp. 94, 95 and Table 3.8.

133 HR, Vol. 2, pp. 83-85.

134 Hungarian monitoring.

reservoir on surface water quality are that the impoundment will lead to sediment deposition and increased light penetration. With current nutrient levels in the Danube, changes in algal composition and increases in algal growth can be expected. However, the biological responses depend on a combination of climatic and flow conditions, and are highly unpredictable. Increases in algal populations lead to increased variability of dissolved oxygen, and where low levels occur, the ecological systems can be damaged. The vulnerability of the reservoir is clearly indicated by Slovakia[135] : "The water in the reservoir ... may be characterized ... as eutrophic water."

67. Information from the reservoir has been extremely limited. The Court may wish to note that Chlorophyll-a measurements, which are indicators of eutrophication, from the five monitoring sites within the reservoir were not included in the 1995 Slovak monitoring report. Slovak data from within the reservoir for summer conditions in 1994 show a doubling of chlorophyll-a concentrations between the reservoir inflow and the intake to the headrace canal[136], i.e. a greater effect than predicted by Hungarian modelling[137]. Thus, as expected, there is evidence of enhanced eutrophication activity already underway.

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135 SR, Vol. III, p. 29.

136 SR, Vol. III, Fig. 2.2.

137 HC-M, Vol. 2, Section 3.3.2.3.

headrace canal[138], i.e., a greater effect than predicted by Hungarian modelling[139]. Thus, as expected, there is evidence of enhanced eutrophication activity already underway.

69. Effects of Variant C also included major changes to the water supply to the Mosoni Danube. This resulted in low dissolved oxygen levels and fish mortalities in August 1993[140].

70. A further issue related to surface water quality is the quality of reservoir sediments. Hungarian concerns were documented in the Hungarian Counter-Memorial[141] and elsewhere. Once again there are clear contradictions in Slovak evidence, even within its Reply. On the one hand it is said that a 1993 study shows that "the sediments are not significantly polluted and . . . they are not polluted by organic contaminants"[142]. But then a 1995 study is said to show that "relatively high contents of PAH's[143] are found . . . High contents are also found for Nikel"[144] . . . Calculations . . . suggest that concentrations above Slovak drinking water limits may happen for Ni"[145] — in other words carcinogenic organic pollutants and mobile heavy metals have been found. Further contradictions abound[146]. What are we to make of these reassurances from the monitoring programme, which are in direct contradiction to Slovakia's own data?

138 SR, Vol. III, Fig. 2.2.

139 HC-M, Vol. 2, Section 3.3.2.3.

140 H C-M, Vol. 2, pp. 75-76.

141 HC-M, Vol. 2, p. 65.

142 SR, Vol. III, p. 35.

143 Polyaromatic hydrocarbons.

144 Nickel.

145 SR, Vol. II, Part II, p. 141.

146 SR, Vol. I, para. 12.13, p. 285.

71. By way of summary, the impacts of Variant C show severe short-term effects already, together with the early stages of long-term change already observed by Slovakia and Hungary. Slovakia's accusation of Hungary's failure to produce evidence of harmful effects[147] is denied by its own scientific data as made available to the Court.

147 SM, Vol. I, paras. 1.13 et seq., p. 5.

Impacts of remedial measures

72. In this second part of my speech, I will consider the observed impacts of remedial measures on water resources. Slovakia argues repeatedly that remedial measures are all that is needed to mitigate adverse effects. It is also claimed that Slovak measures have "dramatically improved the side arms on the Slovak side"[148]. But it produces no detailed evidence to support that view. And of course it ignores the Hungarian side.

73. In our Reply we illustrated the anticipated impacts of remedial measures on groundwater using groundwater simulation methods. This diagram[149] (Illus. No. 12.18) shows the limited increase expected for Variant C. The effect of a side-arm recharge of 100 m^3/s, with 300 m^3/s in the main channel was compared with allowing the 100 m^3/s simply to be discharged in the main channel. It can be seen that the anticipated effects of the recharge system were a limited alleviation of groundwater level decreases in a limited area. In other words, the rate of decrease is marginally reduced.

74. Observations following the construction of the diversion weir and increased side-arm discharges are now available. They confirm our predictions. The diagram[150] (Illus. No. XX) shows a comparison of the groundwater levels in July/August 1995, with 96 m^3/s supplied to the side-arm system, and June/August 1992, prior to the Danube diversion. Despite the recharge system, groundwater levels during this period of average flows continue to show declines in excess of 3 metres in the active floodplain.

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148 SR, Vol. I, para. 1.20, p. 8.

149 HR, Vol. 2, Plate 7.4.

150 Hungarian monitoring.

75. One of the reasons for this is the complexity of the natural system. Simplistic assumptions of the surface water-groundwater interactions were based on limited knowledge. They can now be seen to be inadequate. The current side-arm system has a complex morphology[151]. The subsurface properties are highly variable,[152] with complex stratification and occurrence of interleaved lenses of different material. Surface water levels in the side-arm channels are not in simple connection with the underlying groundwater, and (as in the Rhine) groundwater levels are not simply raised to surface water levels. Results of a 1994 field monitoring programme showed that surface water levels can be 1.2 m higher than the underlying groundwater[153].

76. It has been argued by Slovakia[154] and the EC Working Group that simply maintaining adequate flows will provide flushing of channel bed sediments and guarantee effective operation of a recharge system. This is certainly not supported by the detailed measurements in the Szigetkoz. Some of the largest differences between surface water and groundwater levels were observed in a newly-excavated side-arm channel with high flow velocities and a gravel bed, i.e., precisely the conditions held to be most favourable for recharge[155].

77. The Court may be interested to note that significant decreases in groundwater level also occurred in the active flood-plain on the Slovak side, as the Slovak pleadings

151 HR, Vol. 2,Plate 7.1

152 As illustrated in Figure 7.2, HR, Vol. 2.

153 HR, Vol. 2, Section 7.3.2.

154 SM, para. 7.42.

155 HM, Vol. 2, p. 83.

confirm[156]. Although precise locations are not given by Slovakia, three out of the four soil moisture monitoring locations in the area shown reveal a systematic decline in soil moisture, even after remedial measures[157]. This is consistent with what Hungary predicted. The only well response within the floodplain shown in detail in the Slovak pleadings is untypical in showing a rise in groundwater in this area[158]. But even that proves an almost total loss of the natural variability of groundwater levels following the remedial measures.

78. Effects on groundwater quality of recharge from the side-arm channel system have already been discussed, and evidence presented of the poor quality of such recharge. To create the diversion of flows to the recharge system, the underwater weir was constructed. As for the Cunovo reservoir, this structure provides an impoundment behind which sedimentation will occur and has already done so, as explained by Dr. Kern. This provides a small scale illustration of the effects expected from the reservoir and a direct example of the situation for any further weirs in the main Danube channel. Recent data from the Hungarian Geological Survey (Illus. No. 12.20) show that groundwater at this location is progressively losing its oxygen content (seen here), that nitrate levels are decreasing (consistent with a change to chemically reducing conditions). Pollutants such as manganese are increasing. In other words, the expected groundwater quality degradation is beginning to occur.

156 SR, Vol. III, Chapter 1, Fig 11.

157 SR, Vol. III, Chapter 3, Figs. 1.7-1.10.

158 SR, Vol. III, Chapter 1, Fig. 9 well 1977.

79. Mr. President, Members of the Court, permit me to conclude this presentation on the impacts of Variant C with some summary remarks.

—First, it is clear that the short-term impacts of Variant C have been severely damaging. You have heard of the loss of flow in the main Danube channel, including flood inundation, the reduction of groundwater levels and their variability, the impact on aquatic and terrestrial habitats.

—Second, you have heard that long-term changes of many kinds are expected, and that the first signs of these are now evident. The loss of fish species, for example, are a precursor to the long-term degradation of biodiversity. The beginnings of wide-spread groundwater quality degradation are apparent. Severe changes to river bed sediments have already occurred.

- Finally, Slovakia repeatedly argues that remedial measures can resolve these effects. Yet we have seen that increased flows to the side-arm channels degrade the habitat diversity and fail to restore groundwater levels in the active floodplain. And Hungarian and Slovak data clearly illustrate the loss of the essential groundwater variability.

80. Slovakia proposed to raise groundwater levels with the construction of a series of weirs in the Danube channel[159]. Yet what are the consequences of such weirs? The former free-flowing river becomes a series of ponded sections, vulnerable to eutrophication and

[159] SC-M, para. 4.34, 7.44; SR, para. 12.45.

representing a degraded habitat. You have heard that sediment deposition has already taken place, and effects of its degradation are already apparent in deterioration of groundwater quality. Even now, implications of the reduced channel flood capacity remain unexplored.

81. Mr. President, we see that the actual, observed impacts of Variant C are fully consistent with the concerns Hungary expressed about the Original Project. They show actual damage to biodiversity and to water resources on the Hungarian side. They show the first signs of a severe and potentially irreversible transformation of an internationally recognized wetland. And they show that remedial measures simply aggravate many of the adverse effects they are supposed to mitigate.

Mr. President, I hope the Court will understand that our science pleadings were of necessity prepared prior to Slovakia's submission of the PHARE final report and that there has so far been no time to examine it in any detail. Can I for the moment simply make the following observations:

1. the existence of the PHARE report, finalized in December 1995, is ample testimony to the fact that integrated assessment of environmental impacts had not been previously undertaken for the Original Project. The aim of this Project was to provide the tools to do so, but in its case for Variant C.

2. The report itself clearly supports the Hungarian perception that the underlying science issues are complex, poorly understood in key respects, and that assessment is subject to a high level of uncertainty in most important areas.

3. It reinforces the concerns of Hungary for many aspects of potential environmental impact previously denied by Slovakia. For example, concerning the loss of variability of surface and groundwater levels, deterioration of groundwater quality, and resulting degradation of habitats and ecosystems.

4. It is evident from the report that remedial measures, as proposed by Slovakia, have important adverse effects, including degradation of fish populations, risks to surface water quality, and loss of the dynamic "pulse" that Professor Carbiener described on Monday.

82. Mr. President, Members of the Court, may I now ask you to call upon Philippe Sands to address the timing of Variant C and related matters. Thank you for your attention.

The PRESIDENT: Thank you, Professor Wheater. Mr. Sands.

Mr. SANDS:

13. THE TIMING AND PREPARATION OF VARIANT C

1. Mr President, Members of the Court, it is a great privilege for me to appear again before you.

2. You have heard Professor Nagy on the differences between Variant C and the original project and you have heard my scientific colleagues on the impacts of Variant C. It falls to me to address the timing and the preparation of Variant C. The principal issue that I will deal with is the timing of its planning, its financing and construction, on which subject

the Court has been presented with sharply differing views. But I will also draw your attention to internal governmental Czechoslovak and Slovak documents, which show legal and economic analyses during the preparation and early construction phase of Variant C. These illustrate the nature of the States' approach to the norms of *pacta sunt servanda,* to the utilization of shared natural resources, and to the protection of the environment.

3. Slovakia claims that the process of planning and approval of Variant C only began in July 1991, and that the entire structure was conceived and put into effect in just 15 months. Hungary considers that planning and approval began in fact a great deal earlier, not later than 1990, and that more than three years passed from conception to delivery. In that regard, as Professor Valki noted, Variant C appears to be consistent with Czechoslovak aspirations for unilateral control and exploitation of these waters going back as far as the 1920s and the immediate post-war period[160]. We know, that as early as 1945, Czechoslovakia argued for a bridgehead on the right bank to be extended and that in 1952, it announced an intention to achieve unilateral control over hydroelectric potential with the construction of barrages from Bratislava to Chl'aba, a proposal which we now know incorporated all the essential elements of Variant C[161]. Express threats of unilateral diversion were made in 1955, and again in 1958[162]. And even after the conclusion of the 1977 Treaty Czechoslovakia threatened unilateral action in its negotiations concerning the implementation of the Treaty. Slovakia does not deny that this happened in 1982, although the relevant passage in its Reply is rather defensive. It says that it is "conceivable that the

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[160] HR, para. 2.05.

[161] HR, para. 2.12.

[162] HR, paras. 2.13 and 2.14.

possibility of unilateral completion of the Project was mentioned" during the October and November 1982 negotiations[163]. A conceivable possibility, says Slovakia. Yet it is in a position to know!

4. The Court has been asked to determine "whether [Czechoslovakia] was entitled to proceed, in November 1991, to the 'provisional solution' and to put in operation from October 1992 this system"[164]? As to the first of these two dates, November 1991, it now appears that 25 July 1991 is the more relevant since that is the date on which negotiations between the two States were unsuccessfully concluded and before which Slovakia says nothing happened in relation to Variant C. The second date, diversion in October 1992, is not disputed. So I will address the period prior to July 1991, on which there is real disagreement. My colleagues will in due course address the question of whether proceeding with Variant C was permissible, whether in July or November 1991, or at any time.

5. In asking the Court to consider what are essentially factual matters we are nonetheless asking you to exercise your judicial function and make a determination with the appropriate legal consequences. The timing of Variant C is important to this case for a number of reasons, which is reflected in the energy with which Slovakia defends her position that *nothing* – and I stress nothing – happened before July 1991. There are three reasons Slovakia takes this position. *First*, as you will recall, in July 1991 an important

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163 SC-M, para. 4.15.

164 Special Agreement for Submission to the I.C.J. of Differences between the Republic of Hungary and the Slovak Republic Concerning the Gab_íkovo-Nagymaros Project, 7 April 1993, Art. 2(1)(b), HM, Vol. 3, Ann. 32.

round of negotiations was concluded without success. If the Court was to find that the decision to implement Variant C had been taken before 25 July 1991, when those negotiations concluded, this would clearly imply that Czechoslovakia had not been negotiating in good faith with Hungary. *Second*, deciding that there had been an earlier start would also undermine Slovakia's argument that Hungary's decision to terminate the 1977 Treaty had in fact occurred "long before even the *planning* of Variant C"[165]. *Third*, the July 1991 date is central to Slovakia's argument that Hungary's acts were not justified on scientific or on legal grounds, and they were somehow unrelated to the decision to continue with Variant C[166] and, in that sense, strictly unilateral. These three reasons explain Slovakia's vigorous and consistent denials that any decisions concerning Variant C had been taken before July 1991.

6. They also explain why the Court needs to take a view on when the planning and construction of Variant C began, whether it was in July 1991[167] or at an earlier date[168]. We are not saying the Court has to decide on which day the decisions were taken, or at what level of the Czechoslovak governmental system they were taken. But it does need to decide whether Hungary is correct in its conclusion that by January 1991, at the very latest, all the essential elements prior to the construction of Variant C were in place, and significant planning and other works had already been done. Because the proper

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165 SC-M, para. 10.137 (emphasis added)

166 In this sense SC-M, para. 10.28.

167 SC-M, para. 5.67. See also SC-M, para. 6.05.

168 HR, paras. 2.18 *et seq.*

appreciation of Hungary's conduct – was it merely unilateral or was it a response to threats of unlawful conduct – depends on that issue.

7. A word about the evidence. Slovakia claims it was a "*pot-pourri* of press accounts and unsubstantiated analyses"[169]. Certainly Hungary has referred to some press statements, and certainly there are analyses independent of the Czechoslovak Government. But there are also many governmental sources, official and semi-official, and these too are inconsistent with the Slovak version of the facts[170] .

THE OFFICIAL SLOVAK POSITION

8. It is appropriate first to examine the Slovak position as set out in its pleadings. On this point at least Slovakia is clear and consistent. It says that no planning or work was done on Variant C before July 1991.

9. The Slovak Counter-Memorial is unequivocal. It states "the evidence establishes that even the approval of *initial financing and planning* for Variant C did not occur until 25 July 1991"[171]. Since nothing comes before "initial financing and planning" we are to conclude that there were no prior acts. The only evidence introduced in support of this view is Resolution 384 of the Government of the Slovak Republic of 23 July 1991 and Resolution 484 of the Czechoslovak Government of 25 July 1991[172]. But these Resolutions do not show that nothing was done earlier. At most they show that it was only

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169 SR, para. 9.06.

170 See e.g., HR, Vol. 3, Anns. 66, 67, 68 and 81.

171 SC-M, para. 5.67 (emphasis added).

172 Reproduced at Slovak Memorial, Anns. 91 and 92.

at the end of July 1991 that Czechoslovakia was prepared publicly to avow what was going on. They stand in sharp contrast to the Czechoslovak and Slovak governmental documents of 1989, 1990 and 1991 now available to the Court but not, of course, to Hungary at that time.

10. The Slovak Reply reaffirms the previous position, albeit with some amplification of certain earlier "limited acts". We are told that as a result of lack of progress in settling the dispute in the April and July 1991 negotiations the Czechoslovak Government "on 25 July 1991, approved the *first* planning activities for Variant C"[173]. I stress the word "first". It claims no earlier planning whatsoever. And again we are told that construction work on Variant C only began in November 1991[174].

11. Slovakia does concede that some activity took place, but prior to July 1991 this related not to Variant C but to the Original Project[175]. It was not "planning" or "financing". It was "study, discussion, negotiation", and what Slovakia calls "contingent construction"[176]. I have checked to see whether there is such a thing as "contingent construction" known to the engineering community. There is not. Construction is construction. So, we have here an admission from Slovakia that there was construction before July 1991. The question is was there any evidence to a link between that construction and Variant C.

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[173] SR, para. 9.22.

[174] SR, para. 9.25.

[175] SR, para. 9.18.

[176] SR, para. 5.42.

12. In sum, Slovakia's position is that the construction of Variant C was decided at a rather late stage in the dispute, and only in response to "intransigent" Hungarian behaviour. Slovakia asserts that construction of such an extensive project could be initiated and then can be completed in just 11 months, with construction beginning in November 1991[177] .

THE EVIDENCE

13. So, let me turn now to the actual evidence available to the Court. The evidence is mostly Czechoslovak, and it is mostly governmental. It shows that Czechoslovakia began planning Variant C as early as August 1989; the decisions on design planning and finance were taken in late 1990; and that authorizations were granted and construction was underway by early 1991 or very shortly thereafter; he "contingent construction" referred to in the Reply could only have been on Variant C. Variant C was being implemented whilst inter-governmental negotiations were being undertaken from late 1990 until July 1991 and beyond.

14. The evidence set out in the Hungarian Counter-Memorial and Reply shows that by the time Czechoslovakia adopted Resolution 484 on 25 July 1991 planning and construction of Variant C was a *fait accompli*[178].

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[177] SC-M, para. 5.79.

[178] HR, especially at paras. 2.18 to 2.43.

1989

15. One might begin in 1989 with a report from the Czechoslovak newspaper *Pravda* containing an interview with Engineer Oblozinsky[179]. Engineer Oblozinsky was then and apparently still is now a senior official of the Bratislava-based state company responsible for the construction of Variant C. He is well-placed to know the details. Before giving his interview to *Pravda* he had already confirmed on Czechoslovak radio that what he called the "technical alternative" was "at the planning and design stage"[180]. In the *Pravda* interview published on 2 November 1989 he provided further detailed elaboration of a two-phased project. He said:

> "We can only speak about a provisional alternative in phase one. We will first build the leading dam . . . and construct it along an additional section on the left-hand side of the river, where the Danube functions as the joint frontier between the 2 countries. We will then link the river on our territory to the original dam on the right-hand side."[181]

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[179] Interview with Ing. Josef Oblozinsky: "Czechoslovakia to Continue Deliveries to Gab_íkovo Hydroelectric Power Plant", *Pravda*, 2 November 1989; HR, Vol. 3, Ann. 60.

[180] *Rude Pravo*, Bratislava, 1 September 1989, as cited in British Broadcasting Corporation, Summary of World Broadcasts, EE/W0095 A/1, 21 September 1989, HC-M, Vol. 3, Ann. 79.

[181] *Supra*, note 23.

16. This is *1989*. It confirms other official statements from Czechoslovak authorities: a report appearing a few days earlier in *Pravda* includes this statement on behalf of the Czechoslovak Government: "in the event the Hungarian Republic fails to meet its obligations . . . the Czechoslovak Party will be compelled . . . to implement a provisional technical solution exclusively based on the territory of the Czechoslovak Republic"[182] (that is October 1989). And on 13 November 1989 Czechoslovak radio reported that "the position for a new right bank dam for a new navigation channel began to be marked out"[183].

17. So by November 1989 there can be little doubt that what later came to be known as Variant C had graduated from aspiration to preparation.

1990

18. Preparatory work continued in 1990, notwithstanding the silence of the Slovak written pleadings on developments on Variant C that year. Evidence of preparatory work on Variant C is reflected in a number of statements and documents, including statements of former employees made to the Czechoslovak press[184], and in research which was undertaken within the auspices of the Ministry of Forestry and Water Management of Slovakia[185]. In August 1990 Slovak Prime Minister Meciar indicated his commitment to timely completion of a "substitute solution"[186]. Completion — not commencement.

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182 *Pravda*, 31 October 1989, HR, Vol. 3, Ann. 59.

183 British Broadcasting Corporation, Summary of World Broadcasts, EE/W0105 A/1, 30 November 1989, referring to Prague 1730 GMT, 13 November 1989; HC-M, Vol. 3, Ann. 83.

184 HR, para. 2.22.

185 HR, para. 2.22.

186 HR, Vol. 3, Ann. 62.

19. But perhaps the most interesting evidence is to be found in a series of documents annexed to the Hungarian Reply. I would like to refer you to three in particular. To assist in your reading of these documents we have prepared extracts from some of them which you will find in a folder before you. We have highlighted some extracts where appropriate.

20. The first governmental document is entitled "International Law Analysis of the Possibility of Implementing the Gab_íkovo Hydropower Plant as a National Investment"[187]. It is an internal memorandum dated 29 October 1990, which apparently formed an attachment to an opinion on international law of 29 November 1990[188]. The document makes it abundantly clear that by this date Variant C had left the drawing board, but that its presentation required care. The legal opinion says "the Czech and Slovak Federal Republic must present Variant C to the Hungarian partner as a provisional solution". It predicts — and as it turned out, with complete accuracy — that "the realization of Variant C makes the limited operation of the Gab_íkovo plant possible in only two years". It says that the 1976 Boundary Waters Convention is not relevant because "the realization takes place on the Czechoslovak section of the Danube, which does not form the common Czecholsovak-Hungarian border".

21. The legal opinion goes on to identify the numerous considerations which were assessed in concluding that Variant C did not violate international law. It refers, for example, to the obligation under the 1977 Treaty relating to navigation, to the fact that Variant C would not affect the "existing" boundary between the two States, and also compliance to the water flow requirements of Article 14 of the 1977 Treaty. But there is one matter on which the opinion is conspicuously silent: the environment. No mention is made of environmental obligations, whether under Articles 15, 19 or 20 of the 1977 Treaty,

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[187] HR Vol. 3, Ann. 64.

[188] HR, Vol. 3, Ann. 65.

or otherwise. Article 15, in fact, is only relevant and mentioned insofar as it relates to the 1976 Convention which, of course, has been said does not apply. And it appears that one of the authors of this opinion is listed as a member of the Slovak legal team here today.

22. So legal opinions are being sought as to the legality of Variant C in October 1990. Nearly a year before "initial financing and planning" has began.

23. The second governmental document is an "Information Document for the Cabinet Meeting of the Government of the Slovak Republic". It is dated 29 December 1990, and was prepared by the Ministry of Forestry and Water Management of the Slovak Republic[189], and was submitted directly to the Slovak Cabinet. You will find relevant extracts in your folder. The document includes a draft Recommendation. It states that the Government of the Slovak Republic

"A. *accepts* the potential alternatives of utilisation of the Gab_íkovo Hydroelectric Power Plant.

B. *sets the task ... of ... preparing project documentation for the whole process*, including recommendations, in such a way that summary proceedings leading to an earlier start of construction work might become possible."[190]

24. The documents also requires the Finance Minister to raise funds of some Kcs 86 million (some US$3million) "for the preparation of project documentation to make possible the starting of work on and the subsequent realization of option C". And indeed an attached memorandum says that document "C" is the best approach.

25. So this looks very much like a decision. But we are only in December 1990.

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189 HR, Vol. 3, Ann. 68.

190 Emphasis added.

26. Other documents confirm that by this time additional finance had been raised[191], and that the decision to proceed with Variant C had been taken even in the face of unequivocal evidence and information indicating serious environmental damage. But the documents do not show that an environmental impact assessment had been carried out or would be carried out, or that Hungary had been notified. There is no evidence of any effort by Czechoslovakia to consult with its neighbour as required by Article 3 of the 1976 Boundary Waters Convention. And now Slovakia asserts that while being planned that Variant C was not being planned while these documents were being prepared.

27. These documents demonstrate that by December 1990 "Variant C" was well underway.

1991

28. Apparently on the basis of the documents I have just referred, to the Slovak Cabinet took a key decision in January 1991. On 18 January a Czechoslovak newspaper reported that "the Government has accepted *this* proposal", referring to Variant C and presumably the draft Recommendation. The paper predicted completion of the plant in 1993[192]. It is corroborated by other Czechoslovak media reports at that time[193], and by subsequent developments[194].

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191 HR, Vol. 3, Ann. 66.

192 HR, Vol. 3, Ann. 69.

193 See HC-M, Vol. 3, Ann. 87, reporting that the Slovak Government had "approved further progress in the construction" of the alternative solution.

194 HM, Vol. 4, Ann. 43.

29. The decision however did not attract unanimous support in Slovakia has to be said. I refer you in particular to the criticisms made on 5 February 1991 by the Head of the Slovak Committee of Ecology and Environment – a governmental body – about the Cabinet decision. She considered that no adequate consideration had been given to environmental arguments[195]. She said of the decision-making process itself that it reflected what she called "an attitude of technocracy in its assessment methodology" and that the result reflected in her words "a blunt disregard for all expert's opinions ... on issues of ecology [and] water management". As to the impacts of the proposed reservoir for Variant C, sedimentation and groundwater pollution her conclusion - as you will see from the Annex - is in every material respect identical to that put to you by Professors Vida and Carbiener, and just described to you now by Professor Wheater and Dr. Kern earlier today. Indeed a petition by local residents dated 20 February 1991 called for a halt to all work related to the construction of the plant and the financing of the planning and preparatory work of Variant C[196]. Clearly the residents and Dr. Casova thought construction had begun by that time.

30. Annex 74 of the Hungarian Reply is a report from *Pravda* of 2 April 1991. It begins with these words: "It is a well-known secret that as of today, i.e. 2nd April, the State-owned Hydrostav Bratislava company is intending to start the construction activities related to the so-called Variant C. According to the Chairman of the Environmental and Natural Protection Committee of the Slovak National Council "the realization of Variant C [would] commence on 2 April 1991 ... without the approved planning documentation and contrary to the opinions of the majority of the members of the specialist committees and their leaders"[197]. In fact, as you will see from another document, the State Water

[195] HR, Vol. 3, Ann. 70.

[196] HR, Vol. 3, Ann. 71.

[197] HR, Vol. 3, Ann. 72.

Conservancy and Water Protection Department refused an application on 9 April 1991 from the Bratislava Water Engineering Company for the "construction of the water conservation project" concerning "the commencement of the operation of the Gab_íkovo Hydroelectric Power Station in the territory of the [Czech and Slovak Republic]"[198]. This is no doubt a normal application. But not for a project which has not yet been conceived, or planned, or prepared or approved.

31. The third document is a June 1991 Technical Description and Economic Assessment of Variant C (Illus. No. 13.1)[199]. It was prepared by advisers for the Slovak Government. At page 376, which is included in your folder, you will note the following recommendation of Slovakia's own advisers:

"it is recommended that the old river bed should be supplied with at least 600 m^3/s water flow (during the growing season, this value leaps to 1300 m^3/s)".

Indeed later that month the Slovak Environmental Committee itself recommended that up to 1500 m^3/s ought to be supplied to the old river bed[200]. On the screen you will see how those amounts compare to what the Danube used to receive (about 2025 m^3/s), how much the EC recommended in January 1993 (just over 1010 m^3/s) and how much Slovakia has actually provided on average between January 1993 and April 1995 (about 269 m^3/s).

32. You will also find in the document at page 382 an economic evaluation of various flow rates into the old river bed (Illus No 13.2). This evaluation, prepared by Slovak authorities, assesses the economic viability of Variant C. As you will see on the screen, it finds that at a flow rate of more than 1300 m^3/s the plant is of "declining profitability".

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198 HR, Vol. 3, Ann. 81.

199 HR, Vol. 3, Ann. 77, p. 372.

200 HM, Vol. 4, Ann. 168, p. 406.

Between 600 and 1300 m^3/s – in another words at the level recommended by Slovak authorities, it says that the plant would produce only a "moderate average level" of profitability. But at a flow rate of 350 m^3/s the investment becomes "cost-effective". In fact it goes on to say that at 50 m^3/s the Project becomes especially cost-effective. Since October 1992 the old river bed has received a maximum *average* supply of rate of 350 m^3/s, and that at times this has dropped to 180 m^3/s. In other words, planning and operation of Variant C has been carried out in full knowledge of the adverse consequences of the more limited flow. Long term environmental sustainability is sacrificed to short term economic gain. It is a very simple equation. The operation of Variant C after October 1992 is condemned by its own planners.

CONCLUSION

33. Mr. President, Members of the Court, what conclusions are to be drawn from this evidence and the other documents which are available to you in the Hungarian pleadings?

34. By July 1991 Variant C was well underway: The water company responsible for the project had prepared detailed plans; the relevant authorities had received applications for construction licenses (the terms of which were subsequently violated)[201]; the Slovak Cabinet had taken a decision approving the project; local communities and Slovak environmental authorities were protesting; financial resources had been committed; construction was under way; and computation had been made of the significant economic gains at the low level of flow. The evidence also shows clearly that the basis upon which the actual decisions were taken – legal, economic, environmental – was rudimentary to say

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[201] Communiqué of the Slovak Ministry of Environment to the 4 December 1992 Session of the Slovak Government; HC-M, Vol. 3, Ann. 57.

the least. The Slovak submission that "initial" planning approval only came on 25 July 1991 cannot be accepted.

35. These early developments also indicate that the planning and construction of Variant C had nothing to do with the April 1991 Resolution of the Hungarian Parliament, as Slovakia claims[202]. Czechoslovakia participated in the April and July 1991 negotiations whilst we now know, whilst actively preparing the unilateral diversion of the Danube. Early planning confirms that Hungary terminated the 1977 Treaty long after Czechoslovak violations of the 1977 Treaty, the 1976 Boundary Waters Convention and general international law had occurred. And early planning and implementation show that Hungary's subsequent acts were directly related to Variant C.

36. Variant C brought to fruition a long-standing Czechoslovak aspiration. It gives effect to the desire of Czechoslovakia – and now Slovakia – to be able to exercise unilateral control over a dam on the Danube, and over the shared resources of a part of that river. This long-standing aspiration explains why Czechoslovakia was never willing to engage in a serious effort to modify the 1977 Treaty, or to seek to give real effect to Articles 15, 19 and 20 of the 1977 Treaty. And it also demonstrates the real spirit according to which Czechoslovakia – and now Slovakia – considered the 1977 Treaty to establish something other than a "joint management project" in the sense that those words are normally understood.

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[202] SM, para. 5.25.

37. Mr. President, that concludes my submission and Hungary's presentation for today. Tomorrow morning Professor Kiss will address the breaches of international law that have been occasioned by the matters we have described today. Thank you very much for your attention.

The PRESIDENT: Thank you, Mr. Sands. The Court will now rise and resume tomorrow morning at 10 a.m.

The Court rose at 1 p.m.

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