INTERNATIONAL COURT OF JUSTICE

CASE

CONCERNING THE GABČÍKOVO-NAGYMAROS

PROJECT

(HUNGARY/SLOVAKIA)

REPLY

OF THE REPUBLIC OF HUNGARY

VOLUME 1

20 JUNE 1995

TABLE OF CONTENTS

LIST OF COLOUR PLATES

INTRODUCTION

1. This Reply is submitted by the Republic of Hungary in accordance with the Court's Order of 20 December 1994.[1] It supplements the arguments and evidence presented by Hungary in its Memorial and Counter-Memorial and responds to issues raised by Slovakia in its Counter-Memorial.

SECTION A. THE SPECIFICITY OF THIS DISPUTE

2. Article 2 of the Special Agreement asks the Court to answer three legal questions which arose between Hungary and the former Czechoslovakia as to the Gabčikovo-Nagymaros Project (the Original Project). These questions concern (a) the suspension and abandonment of works by Hungary, (b) the adoption of the "provisional solution" (Variant C) by Czechoslovakia, and (c) the legal effect of the notification of the termination of the 1977 Treaty by Hungary. It is necessary to answer these questions in order to determine the legal position in respect of the continuing dispute between Hungary and Slovakia over the Original Project and over Variant C. Hence the reference in Article 2(2) of the Special Agreement to "the legal consequences, including the rights and obligations for the Parties, arising from" the answers to the three specific questions.[2]

3. The parties agree that the Court should first answer the questions identified in Article 2(1) and (2) of the Special Agreement by way of a declaration of the "rights and obligations for the Parties".[3] Issues of implementation and quantification, if they cannot be resolved by agreement between the parties, will have to be dealt with in a subsequent phase of the case, as contemplated by Article 5.

4. The legal issues which the Court is asked to resolve arise from a complex, long-running dispute over the Original Project and over Variant C, a dispute maintained by Slovakia after its independence in January 1993, and which actively continues today. The Court is of course only asked to deal with *this* particular dispute, a dispute between two European industrialised countries, countries associated with the European Union and members of European regional organisations such

---

1 See ICJ Rep 1994, p 151.

2 See HM, paras 2.01-2.08.

3 See HM, para 11.20; SM, Introduction, para 7.

as the European Bank for Reconstruction and Development, the Council of Europe and the UN Economic Commission for Europe.

5. On the other hand the Court is not asked to pronounce on general issues of governmental policy in sectors of energy[4] or the environment.[5] It is certainly not asked to take a position on the desirability or otherwise of the construction of dams on major rivers.[6]

6. In the present case it will be necessary for the Court to resolve factual as well as legal issues which have been at the heart of the dispute over the Original Project and over Variant C. Indeed, the dispute is at least as concerned with factual as with legal issues. On a number of legal issues, there is broad agreement between the parties, and as to those legal issues where there is sharp disagreement, the positions of the parties are by now well defined.

7. There are also significant disagreements on questions of fact. In the context of a dispute over the impacts of a major industrial project on one of the most important European rivers, the factual disagreements are not limited to those about the meaning or implications of diplomatic exchanges, but include scientific, economic and environmental issues.[7] The parties evidently agree as to the necessity to deal with these matters as they arise in the context of *this* dispute. Both have put in issue the viability and the extent of the impacts of both the Original Project and of Variant C.

8. The Court itself no doubt envisaged that this necessity might arise in the context of environmental disputes when it established a

---

4 But see SM, paras 1.50-1.56 for an attack on Hungarian energy policy on the grounds of its reliance on nuclear power (responded to briefly in HC-M, paras 1.190-1.203).

5 But see SC-M, paras 9.64-9.103 for a presentation of Hungarian environmental policy as excessive and unreasoned.

6 Hungary shares the view of the major development and financial agencies that each project has to be justified on its own merits, applying appropriate criteria. In the present case it agrees with the view of the European Bank for Reconstruction and Development that the Original Project had "dubious economic value and negative environmental effects." See HR, Annexes, vol 3, annex 92. But see SM, para 1.52 for the view that Hungary is opposed to hydroelectric power in principle.

7 Although Slovakia seeks to drive a wedge between "economic" and "environmental" arguments (see below, paragraph 1.81), properly understood and in the context of public decision-making, there is no such distinction. The issues have to be treated in an integral and interrelated manner. For guidance in this respect see R Norgaard, *The Economic Analyses of the Gabčíkovo-Nagymaros Barrage System*, HR, vol 2, Appendix 4. Professor Norgaard is a leading environmental economist.

Chamber for Environmental Disputes. In doing so, it made it clear that such disputes might also be dealt with by the Court as a whole.[8] Other courts have been faced with major environmental disputes, as the examples outlined in Appendix 5 show, and the need for resolution of such disputes by legal means is increasing, both at the national and international level.[9]

9. The aim of this Reply is to assist the Court in its task of addressing the questions specified in the Special Agreement. In particular, the Reply will seek to identify with precision the various factual and legal issues which continue to divide the parties, to outline their respective positions (with references to earlier pleadings and relevant annexes) and to respond to specific arguments presented in the Slovak Counter-Memorial.

SECTION B. THE UNUSUAL CHARACTER OF THE SLOVAK ARGUMENTS

10. Slovakia's approach to the case has been unusual, in terms of its tone and in a number of other respects. The tone of the Slovak pleadings can be judged from the "Index to Certain Words and Phrases" attached as Appendix 1.[10] The flavour of that Appendix may be sampled from the following:

Word or Phrase	Occurrence in SM/SC-M	Occurrence in HM/HC-M
alleged	80	5
ignores	62	21
purported	89	8
supposed	18	5

8 In its Communiqué No 93/20 of 19 July 1993, the Court described the Gabčíkovo-Nagymaros case as one "with important implications for international law on matters relating to the environment". It also expressed the desire to "be prepared to the fullest possible extent to deal with any environmental case falling within its jurisdiction".

9 See "Some Major Dam Disputes", HR, vol 2, Appendix 5, which includes a selection of dam disputes dealt with by international and national tribunals and other authorities.

10 See "Index of Certain Words and Phrases in the Slovak and Hungarian Memorials and Counter-Memorials", HR, vol 2, Appendix 1.

Other terms used in the Slovak pleadings further the impression – it must be said – of intemperate opposition. Those listed in Appendix 1 include "absurd", "audacity", "grotesque", "mockery", "nonsense", and "preposterous". It will be a matter for the Court to assess the respective evidence adduced by the parties. But Slovakia is well ahead in the matter of epithets.

11. It is of course for each party before the Court to choose how to present its case, and Hungary would not make this contrast were it not relevant to the merits of the present dispute. It *is* relevant in the following way. To judge from the Slovak pleadings, Hungary is an "arrogant",[11] "demagogic"[12] party, "ruthlessly"[13] engaged in "fabrication"[14] with a "cavalier attitude"[15] – at the same time with its "head in the sand"[16] and living in a "world of make-believe".[17] Above all, Hungary is alleged to have acted throughout in bad faith;[18] it did not even *believe* its own repeated environmental arguments, arguments relating to "environmental effects that it alone perceived".[19]

12. Yet the apparent *point* of all this Slovak argument and assertion is to force Hungary to engage with it in a close and continuing partnership requiring day-to-day cooperation and mutual trust on a matter vitally affecting the environment and natural resources of both States. There is a contradiction between Slovakia's method of pleading and its avowed aim.

13. At the procedural level, Slovakia has failed to provide documents evidently in its possession despite repeated requests, directly and through

---

11 SM, para 8.114; SC-M, para 10.10.

12 SC-M, para 1.17.

13 SC-M, para 10.121.

14 SC-M, para 4.16.

15 SC-M, para 10.09.

16 SC-M, para 7.83.

17 SC-M, para 11.06.

18 SM, paras 8.29-8.57; SC-M, paras 5.29-5.62. See also SC-M, paras 2.16, 10.73 ("*nemo auditur propriam turpitudinem allegans*"). See, however, HC-M, paras 2.118-2.128, where the allegation of bad faith is dealt with.

19 SC-M, para 9.23. For examples of independent bodies who have "perceived" these effects see HM, paras 3.58, 3.74, 3.94; HC-M, paras 2.123-2.124; see further *Scientific Rebuttal*, HR, vol 2, chaps 3-6.

the Court,[20] whereas Hungary has responded in full to each of the requests made of it.[21]

14. At the level of evidence, the situation can be summarised as follows.[22] Slovakia feels the repeated need to make categorical scientific assertions, but seems to feel no need to justify these with scientific evidence. It is true that Slovakia criticises the Hungarian position extensively on the grounds that no evidence was adduced to substantiate concerns.[23] But in addition to the large number of studies previously annexed, referred to and discussed, the Hungarian Counter-Memorial (in particular volume 2) presents the supporting evidence in considerable detail. Recent observations are presented to quantify the immediate short-term impacts of Variant C. Relevant findings are drawn from Hungarian and international experience. Computer simulation studies are adduced on a range of issues and these are extended to remedial measures.

15. In contrast, Slovak assertions frequently lack supporting argument or evidence. For example, it is asserted that eutrophication "has been extensively studied...in relation to this particular Project",[24] yet no evidence is provided even in summary form. On the critical issue of aquifer recharge, no evidence is introduced in support of the statement that "it is equally undeniable that this reservoir...will continue to be a good source of aquifer recharge".[25] Where supporting documents are referenced there is often an inappropriate assessment of their scientific credibility, as with aspects of the Bechtel Report.[26] Unwarranted comments are made about reputable organisations (e.g. Equipe Cousteau and WWF). So far Slovakia has relied almost exclusively on national scientific work, has not yet provided information as to the results of the

---

20 For the requests see Letter of Agent of Hungary to Agent of Slovakia, 11 August 1994, repeating request contained in *Note Verbale* of Hungary to Slovakia of 27 June 1994, in HC-M, Annexes, vol 3, annex 17; Letter of Agent of Hungary to the Registrar of the Court, 6 September 1994, repeating request and requesting other documents; HR, Annexes, vol 3, annex 11. A request for access to dredging data was made on 29 September 1994 in a letter from the Hungarian Agent to the Registrar of the Court: HC-M, Annexes, vol 3, annex 30. After the filing of the HC-M, a further request was made for all documents earlier requested: HR, Annexes, vol 3, annex 18. Slovakia has not responded to any of the requests.

21 HC-M, Annexes, vol 3, annexes 5, 6, 9.

22 See generally *Scientific Rebuttal*, HR, vol 2, chap 2.

23 See e.g., below, paragraphs 1.85, 1.100, 3.18, 3.33.

24 SC-M, para 7.34.

25 SC-M, para 7.52.

26 See *Scientific Rebuttal*, HR, vol 2, chap 2.2.

EC PHARE Project, and when it does refer to independent scientific assessments, often mischaracterises their conclusions.[27]

16. Slovakia has failed to produce relevant studies or data.[28] It has consistently maintained that an extensive programme of environmental studies has been undertaken under the title 'Bioproject', but has failed to produce them despite repeated requests.[29] Where studies have been introduced, for example in relation to soils, they are provided in Slovak and without translations. In fact the soil studies reveal that Slovak scientists share Hungarian concerns about the complexity of the issues, the need for further scientific work, and the lack of information on remedial measures.[30]

17. Slovakia frequently demonstrates a failure to appreciate basic scientific issues. Numerous examples relating to surface and groundwater quality issues, monitoring, risk assessment and environmental issues generally are identified and explained in the *Scientific Rebuttal*.[31]

18. The Slovak Counter-Memorial distorts and misrepresents the Hungarian position. The *Scientific Evaluation* and the *Scientific Rebuttal* document many examples. There is misquotation (for example, where Hungary identifies groundwater subsidence in the Middle Szigetköz as "0-1 metre" this is described as "a decrease of just 0.5 m"[32]) and mischaracterisation of views (Hungary has at no point argued that "dams are generally not to be favoured", as Slovakia suggests).[33]

---

27 See *Scientific Rebuttal*, HR, vol 2, chap 2.5.

28 See *Scientific Rebuttal*, HR, vol 2, chap 2.3.

29 HC-M, Annexes, vol 3, annexes 17, 30; see also HR, Annexes, vol 3, annexes 11, 18.

30 See below, paragraph 2.69.

31 *Scientific Rebuttal*, HR, vol 2, chap 2.4.

32 See HM, vol 1, Appendix 3, p 422, and SC-M, para 8.23.

33 SC-M, para 7.29.

SECTION C. FORM AND STRUCTURE OF THIS REPLY

19. The aim of this Reply is to provide an overall guide to the case and its associated materials in response to the Slovak pleadings, while at the same time marshalling the arguments and evidence and providing a guide to the pleadings and relevant annexes.

20. The dispute over the Gabčíkovo-Nagymaros Project involves two distinct elements: (1) the Original Project as provided for in the 1977 Treaty, and (2) Variant C, a scheme unilaterally implemented by Czechoslovakia and adopted by Slovakia.[34] The first two chapters of this Reply deal with the issues which divide the parties as to these two elements. Chapter 3 then turns to confront the questions for the Court as defined in Article 2 of the Special Agreement; these are dealt with successively, drawing on the discussion in Chapters 1 and 2 and in the earlier pleadings. In each chapter, relevant factual and legal issues are dealt with in an integrated manner, and an attempt is made throughout to identify and to clarify the essential issues which separate the parties. Chapter 3, in particular, can be read as a free-standing guide to the specific questions the Court is asked to decide.[35]

21. Volume 2 includes a more detailed *Scientific Rebuttal* of the arguments presented in the Slovak Counter-Memorial, prepared by the Hungarian and international scientific team which was responsible for the *Scientific Evaluation* presented as volume 2 of the Hungarian Counter-Memorial. It also contains the following six appendices:

1. Index of Certain Words and Phrases in the Memorials and Counter-Memorials
2. Some Misrepresentations in the Slovak Counter-Memorial
3. COMECON and the "Ideological Neutrality" of the Project
4. Professor R Norgaard, *The Economic Analyses of the Gabčíkovo-Nagymaros Barrage System: A Report*
5. Some Major Dam Disputes
6. The History of the Dispute: 1989-1992

---

34 See *Plates 2* and *3* at the end of this volume. With the exception of *Plates 1-3*, all referenced colour plates may be found in the *Scientific Rebuttal*, HR, vol 2.

35 For a summary of the conclusions reached in each chapter, see below, paragraphs 1.149, 2.106 and 3.179, respectively.

Appendices 1 and 2 set out in tabular form information about Slovak arguments. Appendix 1 has already been mentioned.[36] Appendix 2 sets out and responds to some misrepresentations in the Slovak Counter-Memorial, thereby avoiding descending to many points of detail in the text of this Reply. Appendices 3-6 deal with a number of important issues which require more detailed treatment.

22. Volume 3 contains scientific and other annexes (documents and studies referred to in volumes 1 and 2). Volume 4 is a stand-alone chronology of the dispute, which may assist the Court in providing a guide to the key events from 1988 to early 1994.

---

36 Above, paragraph 10.

CHAPTER 1

THE 1977 TREATY AND THE ORIGINAL PROJECT

INTRODUCTION

1.01. The first major aspect of the dispute which the Court is asked to address concerns the Original Project as envisaged by the Treaty, in particular whether Hungary was entitled to suspend the works on its parts of the Project in 1989 and subsequently cancel them. The parties disagree on the critical issues which need to be considered in relation to the Original Project. This Chapter addresses the Slovak arguments on the following issues: the essential character and objectives of the 1977 Treaty (**Section A**); its legal status and its relationship to other agreements and general international law (**Section B**); the adequacy of preparatory environmental impact assessments, the evidence of the Original Project's likely effects on the environment and the economic and other consequences of addressing those effects (**Section C**); and the parties' conduct from 1989 to 1992 (**Section D**). It concludes with a summary of the essential points.

SECTION A. THE CHARACTER OF THE ORIGINAL PROJECT

1.02. Slovakia reduces the place of socialist integration and CMEA involvement to a "stylistic formality".[1] It rejects the economic arguments.[2] Instead it relies on a motley collection of "purposes" depending upon the exigencies of the argument. These include "restoration of previous groundwater levels; prevention of further erosion of the riverbed; rehabilitation of the river branches..."[3] This approach

---

1 SC-M, para 2.06. For a detailed response see below, paragraphs 3.82-3.91, and HR, vol 2, Appendix 3 on CMEA involvement. CMEA is the abbreviation of the official name of the organisation (Council for Mutual Economic Assistance), but in non-communist literature and foreign policy documentation the acronym COMECON is also widespread and will be used here.

2 For a critique of the original economic projections see HR, vol 2, Appendix 4. For the changes in economic viability – to which unaccounted environmental impacts contributed greatly – see paragraphs 3.82-3.86. below.

3 SC-M, para 9.60. The SM also speaks of "revitalisation of the dried up side arm system" as a "principal objective" (SM, para 6.132), or "a monitoring system" as a "basic aim" common to the Original Project and Variant C (SM, para 5.26).

even presents the Treaty as *focusing* on "the preservation and improvement of the environment"![4] But although the Treaty did contain provisions relating to environmental protection, and although the parties assumed that the Original Project could be built in a way which was *consistent* with environmental protection, the principal objectives of the Treaty were as stated in its preamble. They were its *raison d'être*.

(1) THE POLITICAL CHARACTER OF THE ORIGINAL PROJECT

1.03. The 1977 Treaty was understood as a manifestation of "brotherly" co-operation between two socialist States.[5] If commitment to the execution of the project wavered, COMECON ensured that the path of socialist internationalism would be followed. This occurred in 1956[6] and again in 1970-1971.[7] In negotiations for the 1977 Treaty, COMECON's role was never far from the minds of those responsible for the Project. In 1974 the Deputy Prime Ministers of Hungary and Czechoslovakia described the Project as –

> "an integral part of the comprehensive programme for the development of socialist economic integration of the COMECON countries...promot[ing] the realisation of objectives...for the comprehensive use of the Danube..."[8]

This exactly mirrors the two objectives adopted in the Preamble to the Treaty.

1.04. Slovakia seeks to evade the relationship between the Original Project and COMECON: this is merely Hungary's "litigation strategy".[9] But there is no indication that the drafters of the Preamble had litigation in mind. And their reference to "socialist integration" was no "mere stylistic formality":[10] no other Hungarian-Czechoslovak treaty expressly mentioned COMECON integration in its preamble.[11] Rather, a more general formula was used.[12]

---

4 SC-M, para 10.125.

5 HR, vol 2, Appendix 3 to this Reply elaborates these points at greater detail.

6 HM, para 3.12.

7 HM, para 3.27.

8 HM, Annexes, vol 4, annex 7.

9 SC-M, para 2.05.

10 SC-M, paras 2.05-2.06.

11 To the contrary see SC-M, para 2.07, note 8.

12 See the analysis of COMECON treaty practice in HR, vol 2, Appendix 3, paras 4-5.

1.05. The Preamble operated as a *renvoi* to COMECON principles and objectives. In accordance with Article 31(3) of the 1969 Vienna Convention, COMECON principles thus formed part of the context of the 1977 Treaty and help explain its object and purpose. COMECON principles as to project construction and finance were also reflected in the body of the Treaty: they provided, *inter alia*, for direct costs to exclude general overheads as well as other taxes and charges, for transfer into convertible rubles, and for differences arising as to operating costs to be settled by the performance of further work rather than by financial transfers.[13] Such provisions are distinctive to COMECON, and are not to be found in the contemporary Western European watercourse agreements mentioned by Slovakia.[14]

1.06. Slovakia recognises that the Soviet Union "did follow the bilateral negotiations that led to the 1977 Treaty" but maintains that this was of little significance.[15] In fact, the Soviet Union initially agreed to provide financial assistance to the Project,[16] and in 1977 agreed with Hungary to provide equipment (including turbines) and specialist services.[17] Soviet experts were closely involved in planning,[18] while political and economic difficulties were referred to a higher level for resolution.[19]

(2) THE ECONOMIC CHARACTER OF THE ORIGINAL PROJECT

1.07. Both parties agree that the Original Project was to be a "joint investment".[20] The term "joint" indicates a collaborative project. The term "investment" implies economic viability. In its consideration of the "joint investment" Slovakia focuses on the "collaborative" aspect, but has nothing substantive to say about economic viability.[21] Its silence and repeated emphasis on Hungary's economic as distinct from

---

13 1977 Treaty, Art 12(4), (6), (7). See HM, Annexes, vol 3, annex 21.

14 SC-M, para 2.07, note 8.

15 SC-M, para 2.09.

16 HM, paras 3.16-3.43, and see HR, vol 2, Appendix 3.

17 See HM, para 4.08; HM, Annexes, vol 3, annex 23.

18 Minutes of the results of the consultation regarding the Gabčikovo-Nagymaros Barrage System conducted with Soviet experts at the time of their visit to the People's Republic of Hungary, 7-22 February, 1980; HR, Annexes, vol 3, annex 47.

19 See HR, vol 2, Appendix 3.

20 SC-M, paras 2.17-2.19.

21 SC-M, paras 2.17-2.19.

environmental concerns[22] itself suggests that the Project was not a good investment.

1.08. Trepidation about engaging into the economics of the Project is understandable. The European Bank for Reconstruction and Development has characterised the Project as being of "dubious economic value".[23] Slovakia's treatment of the economic issues[24] is discussed – and comprehensively refuted – in the independent analysis in Appendix 4 to this Reply.[25] By contrast Slovakia makes no detailed claims as to the economic viability of the Original Project as a "joint investment". It provides no internal or independent analysis in support of the claim that the Project "was and is sustainable...in...economic terms".[26]

1.09. As an "investment" the Original Project was to serve both national economies by producing electricity, improving navigation and flood protection, and inducing regional development. But like many other large-scale co-operative projects implemented under COMECON's auspices, the Project could not produce a reasonable economic return. Economic analyses carried out prior to Hungary's suspension (in 1975, 1978, 1983 and 1986) were inadequate,[27] but even they indicated the unlikely economic viability of the Project. As Professor Norgaard concludes:

> "those earlier economic analyses provide no evidence that the GNBS Project was economically sound...on the contrary, they provide considerable reason to suspect that it was uneconomic; that if a similar project was proposed today in Europe or for funding by an international agency it would not receive a full evaluation and would probably be rejected *a priori*."[28]

1.10. Investment decisions in market economies on projects of this kind would incorporate "externalities", such as the decrease in the value of total economic capital and natural resource losses. Such

---

22 SC-M, paras 4.01, 4.13. In truth economic concerns cannot be separated from environmental concerns in this categorical way: the costs of a Project for the environment should be factored in to any assessment. See below, paragraphs 1.81.

23 HR, Annexes, vol 3, annex 92; cf SC-M, para 7.136.

24 SC-M, paras 7.122-7.133.

25 See Prof R Norgaard, *The Economic Analyses of the Gabčíkovo-Nagymaros Barrage System* (1995); HR, vol 2, Appendix 4.

26 SC-M, para 7.136.

27 Norgaard, HR, vol 2, Appendix 4 at parts IV, V, VII, VIII and IX, respectively.

28 Norgaard, HR, vol 2, Appendix 4, p 2.

considerations did not figure in connection with the Project. Even elementary environmental protection measures did not appear in the balances: they were to be treated as (unquantified) "national investments".[29]

1.11. In any event, expected economic growth in both countries was replaced by recession from the early 1980s onwards. This undercut projected increases in demand for electricity and navigation. By 1992 the original purposes of the Project, political *and* economic, had been contradicted by dramatic and unpredictable changes within both countries and externally, and the Project needed thoroughgoing review.

SECTION B. THE TREATY AS A LEGAL INSTRUMENT

1.12. Although there appears to be much in common in the Parties' analyses of the 1977 Treaty,[30] there is a significant underlying difference of approach. Slovakia treats the 1977 Treaty as a *lex specialis* – a virtually imprescriptible, code, legal, environmental and economic, impressed on the region. For Hungary the Treaty must be applied in its international context, related to other agreements and to relevant rules of international law.

(1) CHARACTERISTICS OF THE 1977 TREATY

1.13. While acknowledging that the 1977 Treaty was a "framework" instrument, Slovakia limits its relationship to other relevant agreements.[31] It wrongly asserts that the Treaty established a "specific territorial regime",[32] and it apparently refuses to recognise that, like any other bilateral agreement, the 1977 Treaty could be the subject of revision.[33]

---

29 See Norgaard, HR, vol 2, Appendix 4.

30 SC-M, para 2.01.

31 SC-M, paras 2.13 ff, 2.57 ff.

32 SC-M, paras 2.45 ff.

33 SC-M, para 9.22.

(a) The 1977 Treaty and other agreements

(i) The Joint Contractual Plan (JCP)

1.14. There is no disagreement as to the general character of the Joint Contractual Plan. Slovakia describes it as "complementary and derivative"[34] in its relation to the 1977 Treaty.[35] Hungary agrees with this characterisation, which recognises that the JCP was subordinate to the Treaty.[36]

1.15. The Parties however disagree as to the status of the JCP. Slovakia seeks to present it as an *"accord en forme solennelle"*, thereby enhancing its status.[37] This is of no relevance to the issues in dispute. The JCP had an essentially technical character, since the basic parameters of the Project were established by the 1977 Treaty. In any event, it cannot be seriously argued that the JCP was *"en forme solennelle"*: it was not subject to ratification,[38] but according to the Agreement on its drafting, was to be approved by the enlarged Joint Technical Committee. The Parties remained free at any time to introduce further changes. This they did very regularly.[39]

1.16. As an instrument for the implementation of the 1977 Treaty the JCP was subordinate and ancillary. This is the critical point. It follows that the JCP cannot modify in any respect the substantive rules set out in the 1977 Treaty, and it cannot in itself create new obligations for the Parties to the 1977 Treaty.

1.17. The Original Project, as defined by the 1977 Treaty, was intended as a blueprint, not a rigid scheme. It was intended to evolve as knowledge and circumstances changed. The JCP was one of the means to address matters not addressed in detail by the Treaty.[40] This implied a flexible approach.

---

34 SC-M, para 2.58.

35 SC-M, para 2.58.

36 See further HM, para 4.15; HC-M, para 4.08.

37 See in particular SC-M, para 2.63.

38 Neither was the 1976 Agreement regarding the Drafting of the Joint Contractual Plan itself. HM, Annexes, vol 3, annex 18; HM, para 4.03; HC-M, para 4.08.

39 HC-M, para 2.22.

40 HM, para 4.13.

(ii) Other relevant agreements

1.18. Slovakia devotes almost 20 paragraphs in response to Hungary's characterisation of agreements related to the 1977 Treaty.[41] It contends that their relationship to the 1977 Treaty "is far more complicated than Hungary asserts": "[w]hilst the Treaty implements and carries out certain of these instruments or certain of their provisions, it replaces or modifies others."[42] But it recognises that "there are many agreements post-dating the 1977 Treaty" which are relevant.[43]

1.19. Hungary draws three conclusions with respect to the Treaty and its relationship to other agreements and standards: "the 1977 Treaty was...part of a matrix of bilateral and multilateral treaties specifically applied to the common boundary and its waters, or to the Danube generally"; the treaties in question were often implemented unevenly, with room for renegotiation and adjustment; and the treaty norms themselves were consistent with the developing body of international law.[44] The first conclusion has not been refuted by Slovakia.[45]

1.20. That the 1977 Treaty is to be read in the context of related agreements broadens the basis upon which the legality of the Parties' acts is to be determined. This is reflected in Article 2(1) of the Special Agreement, which refers to "such other treaties as the Court may find applicable".[46]

1.21. The Parties agree that the 1976 Boundary Waters Agreement remains in force between them.[47] Other agreements to be taken into account in the relations between the Parties include the Biodiversity Convention,[48] the Espoo Convention on Environmental Impact Assessment in a Transboundary Context,[49] and the Sofia Convention on Co-operation for the Protection and Sustainable Use of the Danube

---

41 SC-M, para 2.74-2.93.

42 SC-M, para 2.85.

43 SC-M, para 2.92.

44 HM, para 4.56.

45 SC-M, para 2.97.

46 HM, Annexes, vol 3, annex 32, p 343.

47 SM, para 6.46; HM, para 6.50.

48 For the Biodiversity Convention, 5 June 1992 see (1992) 31 ILM 818; HC-M, paras 4.23-4.24. Both Hungary (24 February 1994) and Slovakia (25 August 1994) are parties to the Convention.

49 For text see (1991) 30 ILM 800. Both Hungary and Slovakia have signed the Espoo Convention. See also HM, paras 7.59-7.60; HC-M, para 1.21.

River.[50] The principles set out in these agreements apply to *pre-existing* as well as to new projects.

(b) The "territoriality" of the 1977 Treaty

1.22. Slovakia argues that the inclusion in the 1977 Treaty of what it characterises as a boundary provision (Article 22) transforms it into a "dispositive treaty, the object of which is to institute a territorial regime".[51] Hungary denies that the 1977 Treaty is dispositive either in general or in relation to rights to use the water of the Danube. The 1977 Treaty does not "appropriate" rights over the water.

(i) "Territorial" treaties

1.23. "A treaty binds the contracting states only...*Pacta tertiis nec nocent nec prosunt*."[52]

> "Cette formule lapidaire de la Convention de Vienne sur le droit des traités codifie un principe si évident que l'on a pu en dire qu'il constituait sous une forme négative une autre définition du traité international."[53]

Exceptions to this fundamental rule must be interpreted strictly. This explains the reluctance of the ILC to introduce into the Vienna Convention on the Law of Treaties any such category as "territorial treaties" or "objective regimes".[54]

1.24. Such regimes arise only in exceptional situations.[55] It is true that treaty provisions establishing boundaries or specific territorial situations are generally accepted by third states. Nevertheless, two elements must be taken into account: the acquiescence or acceptance by third States of the parties' competence to establish the territorial situation, whatever it

---

50 Sofia, 29 June 1994; HC-M, Annexes, vol 3, annex 71. Both Hungary and Slovakia have signed the 1994 Danube River Protection Convention. For its relevance to their future relations see HC-M, paras 4.36-4.39.

51 SC-M, para 2.56.

52 See R Jennings & A Watts (eds), *Oppenheim's International Law* (9th edn, Longmans, London, 1992) vol 1, p 1260.

53 P Reuter, "Du consentement des tiers aux normes d'un traité" in A Bos and H Sblesz (eds), *Realism and Law Making, Essays in International Law in Honour of William Riphagen* (Asser Institut, The Hague, 1986), p 156.

54 See P Cahier, "Le problème des effets des traités à l'égard des Etats tiers" (1974/II) 142 *Recueil des cours* 662.

55 See A McNair, "Treaties Producing Effects '*Erga Omnes*'", *Scritti in onore di T. Perassi* (Giuffre, Milano, 1957) vol 2, p 21; see also Cahier, 1974, p 663 ff.

may be, and, in practice even more important, whether the regime constitutes *the true expression of their respective intention to create a territorial regime*.

> "L'importance de la volonté des parties est apparue...tout au long de l'élaboration des articles 35 et 36 de la Convention de Vienne. Ici aussi, il semble que les parties doivent avoir l'intention de créer des droits et des obligations dans un but d'intérêt général."[56]

1.25. In the present case, Hungary and Czechoslovakia sought to establish a "joint investment". Their aim was political and economic: Chapter One of the Treaty does not mention navigation. It cannot be contended that the common will of the two parties was "de créer des droits et des obligations dans un but d'intérêt général".[57] The whole focus was joint control, joint management and even joint property in respect of the System by the two States.[58] For all these reasons, Slovakia cannot attribute an "objective character" to a situation unilaterally imposed on Hungary.[59]

(ii) The Treaty and the international boundary

1.26. There are two simple points here. The first is the minor nature of the changes envisaged to the character of the boundary, once the Original Project was operative.[60] The second is that, according to Article 22(2), a separate treaty was to be concluded to revise the boundary. Article 22 dissociates the Barrage System from the agreed boundary,[61] while recognising that the navigational channel would no longer follow or be identified with the boundary for a limited stretch of the river.

1.27. For Slovakia to claim the 1977 Treaty as "territorial" is to substitute for the real object an artificial one. Its explicit object was to realise a joint investment. Nothing, especially in Chapter One, "Purpose of the Treaty", supports the contention that the Treaty was intended to be territorial in character. Is it likely that the Treaty would "install a territorial regime within the whole of the region covered by the G/N

---

56 See Cahier, 1974, p 661.

57 The international right of navigation on the Danube is secured by the 1948 Convention, to which Art 18 of the 1977 Treaty refers and defers. See HM, paras 4.46-4.47.

58 See 1977 Treaty, Article 10; HM, Annexes, vol 3, annex 20, p 272.

59 See below, paragraphs 2.18-2.43.

60 HM, Annexes, vol 3, annex 20, p 245.

61 This corresponds with the history of the matter: see HM, paras 4.37-4.39.

Project",[62] a region including Nagymaros, located solely on Hungarian territory? A "territorial regime" over 100 km in length is not easily to be presumed.

(iii) The Treaty and the "appropriation" of water rights

1.28. Slovakia's approach to justifying Variant C appears to be based upon the view that the 1977 Treaty gave it "permanent rights" over an agreed quantity of water. The point is not made explicitly in the pleadings, but it was made in diplomatic correspondence, and it is reflected in internal government documents. For example, in October 1989 Czechoslovakia informed Hungary that the "provisional solution would entail directing *as much water* into the Gabčíkovo dam as agreed in the Joint Contractual Plan".[63] Similarly, in January 1992 the Slovak Government took the view that the "provisional solution" was subject to the condition that "water flow into the Danube bed has to be secured in accordance with the amount determined in [the Joint Contractual Plan]".[64] The underlying assumption seems to have been that Hungary had conceded a quasi-proprietorial or vested right over the quantity of water determined by the JCP.

1.29. Hungary denies that the Treaty was intended to establish a permanent allocation of water rights. *A fortiori*, the JCP, given its subordinate and instrumental role, could not have done so.[65]

(c) The "intangibility" of the 1977 Treaty

1.30. Slovakia argues that, since "the 1977 Treaty contains no revision clause", "Czechoslovakia was...under no duty to consult or negotiate concerning the amendment or termination of the 1977 Treaty".[66]

1.31. However, once serious issues had been raised as to the continued viability of the Treaty, both from an environmental and economic point of view, the parties were obliged to undertake in good faith meaningful negotiations to address these concerns.[67] To seek to refute this argument

---

62 SC-M, para 2.51.

63 HC-M, Annexes, vol 3, annex 47 (emphasis added).

64 Information Document No 239 for submission at the meeting of the Slovak Republic National Assembly, January 1992; HR, Annexes, vol 3, annex 84.

65 For the issue of the 1977 Treaty as a "territorial regime" in the context of state succession see below, paragraphs 3.143-3.151.

66 See SC-M, para 9.22.

67 HM, para 6.71; HC-M, para 4.24.

by reference to the absence of a revision clause is surprising, particularly in the case of a bilateral framework treaty governing the use of an important shared natural resource.[68]

1.32. Slovakia also argues that Hungary had failed to show "at least a '*prima facie*' case" as to the existence of grounds for the amendment of the Treaty.[69] At one level this is simply a joinder of issues: Hungary asserts, and Slovakia denies, that there were very serious grounds for concern, such that the Original Project could not proceed as planned. This is one of the issues for the Court, and it will be discussed in Section C, below.

1.33. But the argument that no *prima facie* case had been made out amounted *in practice* to an insistence by Czechoslovakia that the Original Project must proceed as planned, without essential modification.[70] No doubt Hungary assumed the risk of proving before an independent third party that its concerns as to the Project were justified. But equally Czechoslovakia assumed the risk of rejecting those concerns *in limine*, as being not even *prima facie* justified – which is what in substance it did from October 1989 onwards. *Neither* party could be a judge in its own cause in this respect.

(2) THE 1977 TREATY AND GENERAL INTERNATIONAL LAW

1.34. The Court is to apply in the present case the applicable treaties and any relevant rules of general international law.[71] Three consequences follow: first, the 1977 Treaty must be interpreted and applied in light of general international law; second, its application cannot be separated from the legal framework existing at the time it was implemented; and third, the Court must take into account the subsequent evolution of general international law. The 1977 Treaty should be interpreted and applied "within the framework of the entire legal system prevailing at the time of its interpretation".[72] This last point is of particular importance.

---

68 As pointed out in *Oppenheim's International Law* (9th edn), p 1255: "even if the treaty expressly excludes amendment, since the parties can always agree to waive or amend that provision itself".

69 SC-M, para 9.22.

70 Cf HC-M, para 2.22. On the Czechoslovak refusal to contemplate any amendments to the 1977 Treaty itself, see HM, paras 6.30-6.49; HC-M, paras 2.26-2.56.

71 See Special Agreement, Art 2; HC-M, para 6.04 ff.

72 HC-M, esp para 6.12.

(a) Slovakia's equivocal position as to general international law

1.35. Slovakia's treatment of this issue is equivocal, even contradictory. On the one hand, it insists that "a rule of international law, whether customary or conventional, does not operate in a vacuum; it operates in relation to facts and in the context of a wider framework of legal rules of which it forms only a part."[73] On the other hand, it attacks "Hungary's misguided emphasis on the general international law of the environment",[74] and seeks to exclude the application of every prevailing rule of general international law by "absorbing" it into the provisions of the 1977 Treaty.[75] Hungary agrees with the former view and rejects the latter.

1.36. As indicated in Chapter One ("Purpose of the Treaty"), its essential aim was the construction of a Barrage System. Nevertheless, consistency with environmental protection was provided for in Articles 15 ("the quality of water"),[76] 19 ("protection of nature"),[77] and 20 ("protection of fishing interests").[78]

1.37. These articles were important in several respects. *First*, they established certain specific obligations as to the protection of the environment. *Second*, this in turn established a substantial link between the Treaty and general international law, as it evolved and matured after 1977.[79] Accordingly, Hungary does not accept Slovakia's characterisation of the 1977 Treaty as a "*lex specialis*",[80] nor does it agree that Articles 15, 19, and 20 merely reflect "the standards of general international law" as at 1977.[81]

---

73 SC-M, para 1.05, citing *Interpretation of the Agreement of 25 March 1951 between the WHO and Egypt*, ICJ Rep 1980, p 76.

74 SC-M, paras 9.01-9.15.

75 This approach is particularly reflected in SC-M, paras 9.03 ff.

76 See HM, paras 6.13 ff.

77 HM, paras 6.22 ff.

78 HM, paras 6.27 ff.

79 For a similarly broad approach to the interpretation of a narrowly defined "pollution" provision in a Treaty, see the decisions of the International Joint Commission (Canada/US) concerning the 1909 Boundary Water Treaty in the Garrison Diversion Unit Case and the High Ross Dam Case; HR, vol 2, Appendix 5.

80 SC-M, para 1.39.

81 SC-M, para 1.39.

1.38. Rather, Hungary accepts Slovakia's description of the environmental provisions as "general, on-going and continuous obligations"[82] which could give effect to an evolutionary approach to technical standards and the state of scientific knowledge as they develop.[83] Any other approach would freeze the 1977 Treaty in time, and require international law "to enforce outmoded science".[84] It is true that the 1977 Treaty imposed only "relatively general legal obligations"[85] in relation to the environment. But by their very generality those provisions could evolve as general international law evolved.

1.39. The equivocation in Slovakia's position appears for example in the following passage:

> "In the period prior to the Treaty's conclusion, the parties in effect applied general principles of environmental impact assessment – which, even if they may have some normative force today, had not acquired that character in the 1970s – by conducting the numerous studies that led to the decision to approve the Project in 1974 and to its final design."[86]

Hungary does not agree that the studies identified by Slovakia satisfied the condition of an environmental impact assessment.[87] But the Slovak position reflects uneasiness as to the normative status of developing rules. Similarly, having denied any legal character to the Report of the World Commission on Environment and Development or other "soft law instruments",[88] it not only accepts the principle of sustainable development but builds a large part of its argumentation on it. But sustainable development only emerged as a legal term in 1987, being given formal and widespread legal recognition by the Rio Declaration of 1992.[89] Slovakia is willing to rely on "soft" concepts and principles which emerged after 1977 where they support the exigencies of its case.[90]

---

82 SC-M, para 2.30.

83 SC-M, paras 2.27-2.34.

84 See Sir Robert Jennings, cited below, paragraph 3.107.

85 SC-M, para 2.33.

86 SC-M, para 9.05.

87 HC-M, paras 1.23-1.40; see also *Scientific Evaluation*, HC-M, vol 2, chap 7.5.

88 See SM, paras 8.111-8.112. See also SC-M, para 9.57.

89 14 June 1992, UN Doc A/CONF 151/26, vol I, p 8.

90 E.g., International Conference on Water and the Environment: Development Issues for the 21st Century, 26-31 January, 1992, Dublin, Ireland, "The Dublin

1.40. The same selective approach characterises its position concerning principles of general application under subsequent treaties. It seems to accept – since it invokes – the relevance of treaties such as the 1991 Espoo Convention on Environmental Impact Assessment in a Transboundary Context.[91] But it goes on to state that:

> "Any rules of general international environmental law that developed subsequent to the conclusion of the 1977 Treaty and that were both (a) more specific than and (b) inconsistent with the provisions of the Treaty could only displace those provisions if it were established that both parties to the Treaty...so intended."[92]

1.41. The issue is rather how to ensure the implementation of the 1977 Treaty in an evolving manner consistent with the Parties' other international obligations. The general rules of international law for protection of the environment which have developed since 1977 and which were not persistently objected to by either party to this dispute are applicable. Relevant articles of the Treaty should be interpreted and applied in conformity with them. Czechoslovakia breached obligations flowing from Articles 15, 19 and 20 of the Treaty, *inter alia*, by not carrying out any in-depth environmental study,[93] by not ensuring the prevention of damage to water resources, nature, flora, fauna, soils, agriculture and forestry,[94] and, in particular, by not taking into account the potential irreversible effects of the Barrage System on water resources and biodiversity.[95] It refused to cooperate in a spirit which would have allowed a serious investigation into the effects of the Project,[96] once evidence indicating serious problems had been presented. Instead, the Project was to be completed, by whatever means, and its results could then be "monitored". This denied the preventive approach of environmental protection reflected both in provisions of the 1977 Treaty and in general international law.

Statement", reproduced in UN Doc A/CONF.151/PC/112, Annex I, p 7, cited in SC-M, para 9.61; Agenda 21, cited SC-M, para 9.60.

91 SC-M, para 9.90.

92 SC-M, para 9.99.

93 HM, paras 6.32-6.49.

94 HM, paras 6.57-6.63.

95 HM, paras 6.64-6.69.

96 HM, paras 6.70-6.81.

(b) The 1977 Treaty and the obligation to cooperate

1.42. According to Slovakia, the parties –

> "complied with the general obligation to cooperate by the very negotiation and conclusion of the 1977 Treaty..."[97]

1.43. This is not, however, the end of the matter. The Treaty did not exhaust "the fulfilment of the...obligation to cooperate in relation to shared freshwater resources".[98] The general obligation to cooperate is deeply rooted in the international legal order, and has been specifically endorsed in the context of sustainable development and watercourse laws.[99]

> "[I]n evolving areas of law...the obligation to communicate and discuss with the other party has become essentially part of the substantive norms....Information sharing and consultation...have become an element in compliance with the substantive norms themselves."[100]

1.44. The obligation to cooperate in the protection of the environment was stressed by the Arbitral Tribunal in the *Lac Lanoux Case*.[101] It is not limited to the *conclusion* of treaties: a treaty is not a goal in itself. It inspires also the general relations of countries concerned in the development and protection of a given region. In this respect, the obligation to cooperate cannot be separated from the principle of good faith. This principle requires the parties to an international agreement to comply with incorporated evolving norms, in parallel with the evolution of "relevant facts and circumstances".[102] This applies especially in the case of a bilateral agreement in which there is nó designated amendment procedure.

---

97 SC-M, para 9.18. To similar effect, see HM, para 6.72.

98 SC-M, para 9.18.

99 Rio Declaration, Principle 2; also the work of the UN/ECE, below, paragraphs 3.100-3.101, notes 239-240.

100 R Higgins, "Introductory Remarks", Topic 2, UN Congress on Public International Law, 14 March 1995, pp 3-4.

101 *Lac Lanoux Arbitration (France v Spain)* (1957) 24 ILR 101 at 129-30 and see HC-M, paras 6.47-6.57.

102 As acknowledged in SC-M, para 9.16.

(c) Sustainable development

1.45. Hungary and Slovakia agree that the principle of sustainable development, as formulated in the Brundtland Report,[103] the Rio Declaration[104] and Agenda 21[105] is applicable to this dispute. But they disagree on its meaning and its application to the facts.

1.46. Hungary is not "anti-development" or "anti-dam".[106] Its approach is wholly consistent with international law in the field of sustainable development, one which treats environmental protection as an *integral* part of the development process.

1.47. International law in the field of sustainable development is now sufficiently well established, and both Parties appear to accept this.[107] But according to Slovakia, Hungary's approach reflects a "single-minded pursuit of environmental protection or the non-attention of the status quo":[108] Hungary wishes "to frustrate efforts to achieve social and economic development",[109] counsels "*blind* pursuit of environmental values in isolation from human needs",[110] and takes an "absolute position that environmental considerations foreclose development of the freshwater resources it shares with Slovakia".[111]

1.48. These claims are unsupported by the evidence. Hungary was concerned to ensure that the 1977 Treaty was implemented so as to balance environmental and developmental needs. Slovakia by contrast is selective in its reliance on the applicable instruments, including Agenda 21.[112] It focuses on Part A of Chapter 18 (Integrated water resources development and management) but ignores the six other parts concerning other programme areas, which are of particular relevance for

---

103 SC-M, para 9.59.

104 SC-M, paras 9.53-9.55.

105 SC-M, paras 9.57-9.59.

106 As SC-M, paras 9.61, 9.65 alleges.

107 SC-M, para 9.54, note 65. Hungary would add Principle 2 of the Rio Declaration to the list of Principles described as being "of particular interest" to the dispute.

108 SC-M, para 9.55.

109 SC-M, para 9.56.

110 SC-M, para 9.59 (emphasis added).

111 SC-M, para 9.64.

112 SC-M, paras 9.57-9.60.

the present case.[113] Thus Section C of Chapter 18 calls for the protection of groundwater and aquatic ecosystems, which are to be preserved from "*any* form of degradation on a drainage basin basis".[114] Agenda 21 also supports other norms relied upon by Hungary: the polluter pays principle; a precautionary approach in water quality management; mandatory environmental impact assessment on all major water resource development projects potentially impairing water quality and aquatic ecosystems, and use of risk assessment and risk management in reaching decisions and ensuring compliance with them.[115]

1.49. Each of these elements is consistent with Hungary's approach. The desire to protect the drinking water supplies and biodiversity is consistent with applicable international norms, as reflected in Agenda 21 and the 1994 Danube River Protection Convention.[116]

1.50. For development to be sustainable, it must recognise the links between development and the life conditions of future generations.[117] The scientific studies produced by Hungary show that the situation that would have been created by the Original Project was not sustainable.[118]

(d) Prevention and precaution

1.51. Both Parties accept the existence at all relevant times of an obligation to prevent serious environmental harm.[119] Where the two sides differ is (a) on the extent of the obligation, (b) the degree of harm to be prevented, and (c) how far Hungary has to go to prove the likelihood of harm.

1.52. Again Slovakia mischaracterises Hungary's approach. Hungary never claimed that the obligation to prevent harm is absolute.[120] It

---

113 See esp, Agenda 21, Chapter 18, Sections C. (Protection of water resources, water quality and aquatic ecosystems), D. (Drinking water supply and sanitation), E. (Water and sustainable development).

114 Agenda 21, chap 18, paras 18.37-18.38 (UN Doc A/Conf 151/26) (emphasis added). See also chap 18, para 18.35. The national report of the Czech and Slovak Federal Republic to the Rio Conference expressly recognised the threat posed by the GNBS to water resources. See also HC-M, Intro, para 16.

115 Ibid, chap 18, para 18.40.

116 Sofia, 29 June 1994; HC-M, Annexes, vol 3, annex 71. See HC-M, paras 4.28-4.39.

117 Slovakia apparently agrees; SC-M, para 9.54.

118 HM, paras 5.30-5.93; HM, Appendices 1-3; HC-M, paras 1.46-1.168; *Scientific Evaluation*, HC-M, vol 2. See below, paragraphs 1.86-1.92, 1.100-1.140.

119 SC-M, paras 9.67-9.69; HM, paras 6.57-6.65, 7.05, 7.76; HC-M, para 4.24.

120 SC-M, para 9.68.

agrees that the applicable standard is that reflected in the award of the *Trail Smelter* arbitration.[121] It will be for the Court to decide whose evidence is sufficiently "clear and convincing".[122]

1.53. Hungary specifically invokes the test referred to by Australia in argument in the *Nuclear Tests Cases*: activities cannot be considered to be lawful unless they are "generally regarded as natural uses of territory in modern industrial society and are tolerated because, while perhaps producing some inconvenience, they have a community benefit".[123] The likely consequences of the Original Project went far beyond mere inconvenience, or an incidental and tolerable effect of an otherwise socially desirable scheme.

1.54. This approach is consistent with the ILC Draft Articles on the Law of the Non-Navigational Uses of International Watercourses, also selectively quoted by Slovakia.[124] Of particular relevance is Article 21(2):

> "Watercourse States shall...prevent, reduce and control pollution of an international watercourse that *may* cause significant harm to other watercourse States or to their environment...."[125]

By contrast Slovakia implies that the injury must have *already* occurred.[126]

1.55. Slovakia also argues that the precautionary principle is not yet part of international law.[127] But the general practice of States since 1989 shows the emergence of the principle of precautionary action, associated with and grafted on to the well-established principle of prevention.[128] The precautionary principle is clearly expressed in terms

---

121 SC-M, para 9.69 and see 3 UNRIAA 1938 at 1965.

122 HM, paras 7.45-7.56; HC-M, paras 6.29-6.41.

123 *Nuclear Tests Cases, Australia v France*, Pleadings, 525-526.

124 SC-M, para 9.70.

125 Emphasis added. The ILC Commentary makes it clear that Art 21 applies to threats of future harm: *Report of the International Law Commission* (A/49/10, 1994), 236 ff.

126 SC-M, paras 9.69, 9.74.

127 SC-M, para 9.80.

128 See D Freestone, "The Precautionary Principle" in R Churchill and D Freestone, *International Law and Global Climate Change* (Nijhoff, 1991) p 21 ff. See also A Kiss and D Shelton, *International Environmental Law* (Transnational Publishers, Irvington-on-Hudson, 1994) pp 64-67, 69, 81 95; A Kiss and D Shelton, *Manual of European Environmental Law* (Grotius Publications, 1993) pp 37-39, 139, 234,

reflective of customary law in the Bergen Ministerial Declaration on Sustainable Development in the ECE region of May 1990,[129] in Principle 15 of the Rio Declaration, in two universal conventions,[130] the Maastricht Treaty on European Union,[131] and the UN ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes.[132] This is strong evidence of an emerging acceptance of the precautionary principle – especially in the region affected by this dispute.

1.56. Moreover, the precautionary principle has been supported by Slovakia in the 1994 Danube River Protection Convention,[133] and in the Strategic Action Plan for the Danube River Basin 1995-2005, drafted in the framework of the Environmental Programme for the Danube River Basin.[134]

1.57. Despite its citation of authorities to the contrary, at no point does Slovakia actually *deny* the applicability of precautionary principle.[135] Where the parties disagree is rather on the application of the principle to

---

261, 281, 455; H Hohmann, *Precautionary Legal Duties and Principles of Modern International Environmental Law* (Nijhoff, 1994) pp 12, 334, 341, 344; T Ijlstra, "Marine Pollution", *Ybk Int'l Environmental Law* 2 (1991), p 147.

129 Bergen, 16 May 1990, para 7; IPE (*IB/16-05-90*). This was supported by Czechoslovakia and Hungary.

130 Framework Convention on Climate Change, (1992) 31 ILM 849, Art 3(3); Convention on Biological Diversity, (1992) 31 ILM 818, preamble; Rio Declaration on Environment and Development, Principle 15.

131 Maastricht, 7 February 1992, Art 130 R, (1992) 31 ILM 247.

132 Helsinki, 17 March 1992, Art 2(5)(a), (1992) 31 ILM 1312. Slovakia argues that the Helsinki Convention is not relevant: Art 2(5) is said to be restricted to the release of hazardous substances only: SC-M, para 9.24 and note 28. This ignores the definition of "transboundary impact" given by the Convention itself ("*any* significant adverse effect on the environment resulting from a change in the condition of transboundary waters caused by a human activity...") (Art 1(2); emphasis added).

133 HC-M, Annexes, vol 3, annex 71. See Art 2(4): "The Polluter pays principle and the Precautionary principle constitute a basis for all measures aiming at the protection of the Danube River and of the waters within its catchment area."

134 See HR, vol 3, Annexes, annex 102, esp section 1.6, Fundamental Principles and Approaches for Environmental Protection, para 32, and see also para 33

135 SC-M, para 9.90. SC-M, para 9.80 cites P W Birnie and A E Boyle, *International Law and the Environment* (Clarendon Press, Oxford, 1992), p 98 out of context. In fact they insist on the obligation to prevent environmental harm: ibid, pp 95-96 ("...It is now...primarily an obligation of diligent prevention and control, and in this sense, it can be said that international law already adopts a 'precautionary approach'"). See also pp 303, 413, 455.

the facts.[136] Hungary does not claim that the principle is absolute.[137] It has to be applied in a balanced fashion, taking into account both the gravity of the interests involved and the likelihood of harm. But in key respects, in Hungary's view the precautionary approach was not applied *at all* to the Project. There was no proper EIA in relation to the Original Project, before or after 1989.[138] Slovakia does not even *claim* to have applied the principle to Variant C.[139]

1.58. Hungary invoked the precautionary principle to seek a scientific re-examination of the likely consequences of the Original Project. No systematic environmental assessment had been carried out. Hungary did not ask that Czechoslovakia "demonstrate with scientific certainty that the Project would not cause harm".[140] Its behaviour was fully consistent with generally recognised international principles, the more so since it had to protect one of its major natural resources from potentially irreversible harm.[141]

SECTION C. THE ORIGINAL PROJECT: THE ISSUES IN DISPUTE

OVERVIEW

1.59. This Section analyses the reasons for the dispute over the Original Project, as it arose in 1989 and as it developed thereafter. The question for the Court may be formulated as follows:

(a) were there sufficiently serious environmental concerns associated with the operation of the Original Project, both downstream and upstream to warrant suspension of work and a full-scale review of the Project; and

(b) if those concerns were justified, were they sufficient to warrant substantial modification to or abandonment of the Project, either in whole or as to either of its component parts?

---

136 SC-M, paras 9.23-9.24.

137 But see SC-M, para 9.82.

138 HC-M, paras 1.20-1.41; *Scientific Evaluation*, HC-M, vol 2, chap 7.5-7.6.

139 SC-M, para 9.84.

140 But cf SC-M, para 9.89.

141 See HM, paras 7.85-7.86, 10.17-10.21.

1.60. Resolution of this important issue requires the Court to resolve a number of issues of disputed fact, and having done so to apply the appropriate legal standard – the standard of necessity – to those facts. This Section summarises the factual disputes; the legal consequences are drawn in Chapter 3, Section A, within the framework of the questions the Court is to resolve under Article 2 of the Special Agreement.[142]

1.61. As to the issues of fact relating to the Original Project, the following specific questions need to be considered:

(1) Was a proper EIA (or its equivalent) ever carried out on the Original Project?

(2) Were there studies prior to the suspension of construction which provided a sufficient basis for Hungarian concerns and actions?

(3) Did the state of work on the Original Project as of May 1989 preclude a reassessment of the Treaty?

(4) Do studies produced during the suspension of construction of Nagymaros and subsequent to termination confirm the validity of Hungarian concerns?

(5) Could these concerns have been addressed by specific remedial measures?

1.62. The parties disagree on the answers to these questions. *Slovakia's* responses are as follows:

(1) "Environmental issues were carefully studied both prior to and throughout the period by both parties to the 1977 Treaty."[143]

(2) "None of the scientific reports...provided environmental reasons to support the Hungarian Government's attempt to delay the Project."[144]

(3) "The abandonment of the Project for Czechoslovakia would clearly...have been economically disastrous."[145]

(4) "[T]here is no support for Hungary's claims that first Nagymaros, and then Dunakiliti, could not be made operable because of the threat posed to the environment."[146]

---

142 See below, paragraphs 3.03-3.40.

143 SC-M, para 4.01 (emphasis in original).

144 SC-M, para 4.36.

145 SC-M, para 7.132.

146 SC-M, para 7.03.

(5) "It had been found...that any negative impacts could be mitigated at the same time as the parties' development goals were realised."[147]

1.63. This section addresses each of the questions and rebuts the Slovak position. In summary, according to *Hungary*:

(1) No adequate EIA (or its equivalent) was performed by either party prior or subsequent to the 1977 Treaty (see paragraphs 1.64-1.84);

(2) By 1989, studies indicated that the Original Project posed major environmental risks, both downstream and upstream (see paragraphs 1.85-1.92);

(3) The state of the Original Project in 1989 did not preclude a reassessment of the 1977 Treaty (see paragraphs 1.93-1.99);

(4) Research carried out since 1989 confirms that major risks were being run, and major damage was very likely (and in some cases certain) to have occurred downstream and upstream with the implementation of the 1977 Treaty (see paragraphs 1.100-1.140);

(5) This damage could not have been remedied by the specific measures proposed by Slovakia (see paragraphs 1.141-1.144).

(1) NO ADEQUATE EIA WAS EVER DONE PRIOR OR SUBSEQUENT TO ENTERING INTO THE 1977 TREATY

1.64. Neither in its Memorial or Counter-Memorial does Slovakia deny that the parties had an obligation under international law to carry out an environmental impact assessment (EIA)[148] or its equivalent before implementing the Original Project.[149] Instead, Slovakia contends that there is "no basis" for Hungary's assertion that during the Project development phase "no environmental impact assessment was made".[150]

1.65. Using five different lines of supporting argument, Slovakia attempts to demonstrate that "environmental issues were carefully studied both prior to and throughout the period by both parties to the

---

147 SM, para 2.118. Cf SM, para 5.41.

148 For the definition and requirements of environmental impact assessment (EIA) see *Scientific Evaluation*, HC-M, vol 2, chap 7; L Hens, 1994, HC-M, Annexes, vol 4 (part 2), annex 23.

149 Slovakia apparently agrees with HC-M, paras 1.20-1.22 as to the obligation under modern international law to carry out an EIA for projects such as this.

150 SC-M, para 4.03, citing HM, para 3.40.

1977 Treaty"[151] and that "where considered necessary, [the Treaty] was updated by common agreement to take account of the latest research and any technological developments".[152] Hungary's position is that although some selected environmental issues may have been "carefully studied", the issues were never comprehensively studied in the manner required for projects of this type,[153] and that updates could only "take account of the latest research..."[154] if a full EIA was performed.[155]

(a) The number of studies

1.66. First, Slovakia suggests that the number of studies carried out on the Original Project is indicative of their comprehensiveness.[156] What is critical is not the number of studies, but the scope of issues addressed, the quality of each study, and the extent to which the different studies have been *integrated* to provide a coherent overview of the environmental problems posed.[157] These criteria were not met by studies done prior or subsequent to the 1977 Treaty.

1.67. Highlighting the Czechoslovak 1975-76 Bioproject, Slovakia notes "the favourable comparison between the Bioproject and environmental assessments carried out during the same period in North America"[158] and concludes that "[i]t would be difficult to envisage a more complex or complete examination of the effect of the Project on the environment" than the Bioproject.[159]

1.68. Hungary has requested access to the studies constituting the Bioproject on at least four occasions. No response has been received from Slovakia.[160] The Court should draw its own conclusions from the unwillingness to make information available. If documents relating to

---

151 SC-M, para 4.01 (emphasis in original).

152 SC-M, para 4.35.

153 See HC-M, paras 1.23-1.41; L Hens 1994, HC-M, Annexes, vol 4 (part 2), annex 23, chap 5.

154 SC-M, para 4.32.

155 HC-M, paras 1.38-1.41.

156 See SM, paras 2.17-2.22; SC-M, paras 4.04-4.07. For other studies outside the framework of the Bioproject see SM, paras 2.10-2.16; SM, Annexes, vol 2, annexes 23 and 24.

157 See HC-M, para 1.24; see also L Hens 1994, HC-M, Annexes, vol 4 (part 2), pp 849-851; see also *Scientific Evaluation*, HC-M, vol 2, chap 7.5, pp 247-251.

158 SC-M, chap 4, note 11.

159 SC-M, para 4.06.

160 See above, paragraph 13, note 20, with references to the correspondence.

the substance of an allegation are not placed in evidence, then the Court should infer that, "if there are such...report[s] and stud[ies], they do not support the assertions [made]."[161]

1.69. Slovakia states that 99 studies "relating to water quality and environmental issues"[162] were carried out prior to 1973.[163] Only 16 of these related to the important subjects of water quality, biology, and nature protection, and of these 16, only 4 were fully applied by the project designers. Only 3 addressed issues of the natural habitat itself.

1.70. Of the period after 1977,[164] Slovakia says that "continual improvements were being made in the light of the on-going environmental study programs".[165] But of "the detailed list of the new studies carried out by Czechoslovakia after the signature of the Treaty and up to 1990",[166] listed in Annex 24 of the Slovak Memorial,[167] only 7 appear to relate to ecosystems, groundwater, location alternatives, protection measures or water quality, topics normally covered in an EIA.[168] Since they have not been made available, the Court has no basis upon which to consider the adequacy of these studies.[169]

1.71. Hungarian studies prior to 1989 also failed to address the issues in a comprehensive manner. Of the 340 commissioned research projects, only 24 addressed water quality, hydrobiological and ecological topics

---

161 See SC-M, para 4.14, note 26: the reference is to a report issued on 28 April 1982 which had concluded that views on peak energy production were diverse and that further investigation was needed, (HM, para 3.47). Similar documents indicating a lack of consensus about the Project were annexed to the Hungarian Memorial, and a copy of the report in question has been put on file with the Court.

162 SC-M, para 4.04.

163 SM, Annex 23 offers a full list of studies prior to 1973.

164 In the period between 1974-1977, only 4 studies in Slovakia's "detailed list" relate to these topics. Yet this was the key period when "the parties in effect applied general principles of environmental impact assessment"; SC-M, para 9.05.

165 SC-M, para 4.08.

166 SC-M, para 4.09 (emphasis in original).

167 Although the Bioproject was "updated" in 1986 (SM, para 2.22), it is unclear whether the 1986 updating studies are included in this Annex. Furthermore, it is nowhere stated that its conclusions were actually adopted in the designs of the Original Project or in the implementation of Variant C.

168 These are among the studies requested from Slovakia and not provided; see above, paragraph 1.68.

169 Slovakia has refused to provide requested studies stating that "[t]he actual contents of the reports are not relevant to the contention". Letter from Dr P Tomka to Gy Szénási, 3 August 1994; HC-M, Annexes, vol 3, annex 11, p 38.

"*without giving answers to the questions propounded*".[170] This suggests that the Original Project itself was never subject to a comprehensive assessment.[171]

1.72. Slovakia repeatedly invokes the Hydro-Québec Report as "an *independent* review of these [earlier] studies"[172]. But that Report does not support its claim: "La solution technique étant déjà choisie, ces études ne portaient pas sur une comparaison de variantes, mais bien plutôt sur l'optimisation du projet retenu...."[173] *No* studies identified by Slovakia address the desirability of the Project or its overall environmental costs or alternatives. Such an analysis is a prerequisite for an EIA.[174]

1.73. Finally, Slovakia must be taken to have recognised the lack of an adequate environmental impact assessment in its application to the EC PHARE programme for funds to undertake an impact assessment. The application stated that the Gabčikovo sector required a "thorough and complex study of a proper impact assessment model to ensure the protection of natural and anthropic resources, balanced ecological development, as well as optimized decision making and management."[175] It was submitted in October 1990.

(b) 1985 Hungarian Environmental Impact Statement (EIS)

1.74. Slovakia cites the positive conclusion of the 1985 Hungarian EIS in order to demonstrate that "there were no environment-related reasons

---

170 HM, Annexes, vol 5 (part 1), annex 7, p 135 (emphasis added).

171 As Hungary pointed out at the time: HM, Annexes, vol 5 (part 1), annex 7 at p 141.

172 SC-M, para 4.09 (emphasis added) quotes Hydro-Québec Report as proof of that point (in HM, Annexes, vol 5 (part 1), annex 9, at 278-279). The passage quoted merely describes the nature of the work of several institutes in Czechoslovakia.

173 HM, Annexes, vol 5 (part 1), annex 9, p 298.

174 According to SC-M, para 4.10, the Hydro-Québec Report contradicts Hungary's statement that studies prior to 1992 suffered from serious insufficiencies. But Hydro-Québec pointed out numerous areas where data was lacking (HC-M, paras 1.32-1.37, 1.141), as did Bechtel (HC-M, para 1.140).

175 HC-M, Annexes, vol 3, annex 48. For discussion see HC-M, paras 1.39, 2.59-2.63. The Slovak Ministry of Environment after the implementation of Variant C expressed serious concern that the river had been diverted without a proper impact assessment: HC-M, Annexes, vol 3, annex 57 at p 202; HC-M, paras 21-22.

why the Project could not continue."[176] It never addresses the adequacy of that EIS.[177]

1.75. The 1985 Hungarian Study did not meet internationally accepted criteria for an EIS.[178] It did not discuss the issues in an integrated manner; gave no basis for the interpretation of the data; did not describe the standards, assumptions or values used; and left many important questions unanswered.[179] In particular, it provided no information on the Original Project's effect on ecosystems.[180] The Hungarian Academy of Sciences concluded that "[t]he incomplete state of the ecological research has not ceased to exist with the completion of the EIA."[181] Like Hydro-Québec, it stressed that the 1985 Study "only deals with the

---

176 SC-M, para 4.27. Slovakia tries to discredit the 1983 Hungarian Academy of Sciences Statement which had recommended that a comprehensive environmental impact assessment be carried out, stating that it "considered political, technical, and environmental issues (in that order)" (SC-M, para 4.18). But the Statement specifies that it "does not deal with political questions". See HC-M, Annexes, vol 3, annex 36.

177 SC-M, para 9.05 calls the statement an EIA; SC-M, para 9.20 calls it the "most recent and thorough" of the EIAs.

178 Information to be included in an EIS is outlined in *Scientific Evaluation*, HC-M, vol 2, chaps 7.2-7.3. The EIS legislation now in force in Slovakia does not differ significantly in its requirements from those of the Espoo Convention. As of 1985, EC Directive 85/337 required Member States to include a number of different aspects in an EIS. L Hens 1994, HC-M, Annexes, vol 4 (part 2), annex 23, chap 3, discusses the development of EIA in various regions. Slovakia dismisses the argument based on lack of EIA legislation as "an irrelevant comment having nothing to do with the merits of the findings of the Hungarian scientists"; SC-M, para 4.28. This confuses scientific research with an EIA. If a process has no structure to ensure that all relevant issues are studied in a systematic fashion and that the conclusions are taken into account in the decision-making process, it *does* affect the scientific findings and their implementation. The 1985 EIS obviously suffered from the lack of a legislative framework.

179 As to the lack of public participation, Slovakia comments that this "shows that an effort had been made to keep the study a strictly scientific one"; SC-M, para 4.28, note 45. Hungary and Slovakia have both adopted legislation in the past few years which provides for public participation in large-scale project decision-making. By contrast neither Hungary nor Czechoslovakia prior to the late 1980s permitted involvement by the public. It is widely recognised as important to involve the public in the EIA process to make the eventual decisions open and transparent.

180 See also Hens, HC-M, Annexes, vol 4 (part 2), annex 23, pp 888-93, 912-15; *Scientific Evaluation*, HC-M, vol 2, chap 7, at 249. Slovakia suggest that the Bechtel Report is an environmental impact statement (SC-M, para 7.19), but it clearly does not meet the criteria of an EIS – nor was it intended to.

181 HAS Opinion, 28 June 1985, HC-M, Annexes, vol 3, annex 39, pp 106-7.

impacts to be expected upon the realisation of the Joint Contractual Plan or of its modernised concept."[182]

(c) Evolutionary nature of the Original Project

1.76. Both parties recognise "the evolutionary nature of the Project".[183] If Hungary had received Czechoslovakia's cooperation in carrying out a thorough EIA when Hungary first requested it in May 1989, it might have been possible to modify the Treaty to minimise negative ecological consequences.[184] Slovakia claims that "various important modifications were made",[185] but *none* of the three modifications mentioned by it were part of the plans for the Original Project in May 1989.

1.77. First, the "increase of the minimum flow into the old riverbed from 50-200 m^3/s up to 350 m^3/s, with a periodic increase up to 1,300 m^3/s"[186] was never proposed to Hungary.[187] "Periodic" apparently means "each week".[188] As *Figure 7.1*[189] demonstrates, the levels of surface water in the Danube would have decreased on average by 1.5 m, even if such a plan had been adopted, with the resultant influence on groundwater levels.[190] Such a weekly flushing would have been useful, however, in providing necessary water level fluctuations. Occasional floods apart, there are no such fluctuations even today.

---

182 HC-M, Annexes, vol 3, annex 39. Slovakia contends that because the HAS "openly opposed the Project on economic grounds", "a bias against the Project would certainly have manifested itself in the Assessment", which "came about partly as the result of the instructions of the Academy" (SC-M, para 4.24, emphasis added). But the Academy was concerned that costly measures to mitigate environmental effects would not be taken since they had not yet been mandated. That is not the same as opposing the Original Project on economic grounds. Secondly, the EIA was carried out by scientists involved in the implementation of the Original Project.

183 SC-M, para 4.32; HM, paras 4.13-4.21.

184 See HR, vol 2, Appendix 6.

185 SC-M, para 4.33.

186 SC-M, para 4.33.

187 The tone in both the SM and SC-M as to these modifications is very uncertain. No reference is given to a Plenipotentiary meeting or other document; SC-M, para 4.33.

188 SM, para 2.69.

189 *Scientific Rebuttal*, HR, vol 2, chap 7.

190 See *Plate 7.3* showing the simulated differences between pre-dam conditions and conditions under the Original Project, calculated at a 200 m^3/s discharge into the riverbed with low weirs and a 100 m^3/s discharge into the side-arm system. See also paragraphs 1.141-1.144, below, on mitigation measures.

1.78. Although the Plenipotentiaries agreed in June 1989 that low weirs should be designed for the main riverbed, weirs never became part of the plans for the Original Project.[191] These "low weirs" would not have prevented a significant decrease in groundwater: the drop would still have been approximately 2 metres. Lack of water-level fluctuations would also not have been remedied. [192]

1.79. Czechoslovakia considered the monitoring system inadequate in 1990, stating in its EC PHARE application that "An integrated modelling system is to be developed....The objective of the *required comprehensive study is to evaluate* and verify the effects of previous activities and...the *new hydraulic system of hydro-power development...*"[193]

1.80. Slovakia argues that "there can be no question that the Treaty parties had the administrative independence and flexibility to examine and re-examine the Project, and that they did so."[194] In practice that flexibility was limited to proposing technical fixes to the Original Project, as distinct from a thorough environmental impact assessment which might have questioned the basic assumptions of the Project. Moreover the most important change conceived by Czechoslovakia (the Court is now told), the increase in discharge levels to 350 m^3/s in the main channel with increases up to 1300 m^3/s each week, was never communicated to Hungary, never incorporated as part of the plans, and has not yet been implemented by Slovakia in its operation of Variant C.

(d) Links between economics and the environment

1.81. Slovakia argues that economic, not environmental matters, were the primary reason for suspension of construction.[195] Both environmental and economic factors played a role in Hungarian decision-making, and this is not surprising as the two are inextricably interlinked.[196] Environmental concerns have economic consequences.

---

191 Slovakia no longer seems to consider those weirs the most appropriate, instead proposing one weir. See SC-M, para 8.13.

192 Ibid. For a discussion of the inadequacy of weirs, see below, paragraphs 1.141-1.144. See also *Scientific Rebuttal*, HR, vol 2, chap 7.

193 HC-M, Annexes, vol 3, annex 48. See *Scientific Evaluation*, HC-M, vol 2, chap 3, pp 48-50, for discussion of the need for modelling and statements by those familiar with the monitoring programs in the region, e.g., Mucha, 1990, Refsgaard *et al*, 1994.

194 SC-M, para 4.35.

195 SC-M, para 4.13, note 37, citing Marjai letters. For refutation see HC-M, paras 2.12-2.19 and see HR, vol 2, Appendix 6.

196 For the history of the Project prior to 1989, see HM, paras 3.41-3.108.

Economic activities have environmental effects. An EIA requires an assessment of the environmental consequences of various options taking into account their economic aspects.[197]

(e) The Bechtel Report

1.82. Slovakia addresses the adequacy of earlier studies through selective quotation. For example, a quotation from the Bechtel Report states that "[t]he hydrologic regime of the project area has been thoroughly studied and potentially significant impacts have been identified by VIZITERV and associated experts".[198] This gives a misleading impression of confidence. The Bechtel Report raised many important aspects of the Project which had been inadequately treated, in particular its biological aspects.[199] These in turn affect the entire conception of the Project and its operating modes. Specific comments by Bechtel included the need for more detailed study of surface and groundwater conditions, a central issue in this dispute.[200] The authors of the Bechtel Report were clearly aware that significant deficiencies existed in the knowledge of surface and groundwater conditions, and that further detailed studies were required, integrating biological and hydrological aspects. This is in stark contrast to Slovakia's contention that "the best evidence [Bechtel] did not support any such postponement – at least on environmental grounds."[201]

(f) Conclusion

1.83. None of Slovakia's lines of argument show that there was an adequate EIA or EIS. The contrary is indicated by an examination of Czechoslovakia' own actions. To summarise:

---

197 See discussion in *Scientific Evaluation*, HC-M, vol 2, chap 7.1.

198 SM, para 2.31, citing Bechtel, pp I-1 and I-2. The Bechtel Report is contained in HC-M, Annexes, vol 4 (part 1), annex 1.

199 See HC-M, para 1.140. HC-M, Annexes, vol 4 (part 1), annex 1 at 15, 16, 17. For numerous similar quotations see below, *Scientific Rebuttal*, HR, vol 2, chap 2.

200 Bechtel Report, HC-M, Annexes, vol 4 (part I), annex 1 at p 17.

201 SC-M, para 7.17. For other examples, see HC-M, paras 1.30-1.37, citing uncertainties raised by the Czechoslovak Academy of Sciences Biological Society, WWF and Hydro-Québec, in addition to Bechtel and INFORT/Ecologia.

* In 1989 Czechoslovakia initially agreed to further study,[202] but only if construction continued and Hungary closed the Danube at Dunakiliti, thereby pre-empting the study.[203]

* In 1990, Czechoslovakia applied to the EC PHARE Programme for funding to carry out a "thorough and complex study".[204]

* Since 1990, Czechoslovak and Slovak experts have indicated that an adequate study was lacking.[205]

1.84. In a number of instances major dam projects which were almost completed have been postponed until a thorough EIA could be completed. Major dams which were completed or almost completed have not been put into operation because an EIA demonstrated that the project would cause significant harm.[206] To the extent the Hungarian concerns in 1989 were soundly based, the lack of an EIA was a major deficiency in the Original Project. It meant that the Project proceeded without adequate information on its likely or potential environmental impacts.

(2) STUDIES INDICATED BY 1989 THAT THE ORIGINAL PROJECT RAISED SERIOUS QUESTIONS ABOUT RISK AND DAMAGE

1.85. Slovakia asserts "that all the environmental studies up to May 1989 showed that the G/N Project was environmentally sustainable",[207] that "none of the scientific reports...provided environmental reasons" for suspension.[208] On the contrary, many studies raised serious questions about risk and damage:[209] a summary of these is provided in annex 10.

---

202 Agreement was reached during the meeting between Németh and Adamec on 20 July 1989; see HM, para 3.85.

203 See CSFR *Note Verbale*, 30 October 1989; HM, Annexes, vol 4, annex 28. See below, paragraphs 1.113-1.124, 3.32-3.33 for dangers of filling the reservoir.

204 See above, paragraph 1.73.

205 See, e.g., Resolution No 44, 24 October 1990 (Environmental and Natural Protection Committee of the Slovak National Council states that the impact on the environment would be of "a magnitude unparalleled in the history of the country"); HR, Annexes, vol 3, annex 63.

206 See HR, vol 2, Appendix 5 for a review of some cases.

207 SC-M, para 4.01. See also SC-M, para 7.05.

208 SC-M, para 4.36.

209 Slovakia claims that "uncertainty had been followed by a deliberate policy to abort the Project" as of May 1989; SC-M, para 10.05. This sub-section demonstrates the justifications for Hungarian concerns. Section D, below (in conjunction with HR,

This sub-section outlines the concerns evidenced by May 1989, which reasonably led to Hungarian suspension of construction both downstream and later upstream.

(a) Downstream: Nagymaros and Peak Power Operation

1.86. By the time Hungary suspended construction of Nagymaros in May 1989, serious questions had been raised, requiring re-examination both of the Nagymaros Barrage itself and of peak power operation. By the fall of 1989, the concerns had not been alleviated.

(i) Before May 1989

1.87. Studies prior to 1989 often supported the Original Project or came to no conclusion, but nonetheless raised complex questions. Studies had to be paid for out of the same state funds which financed the Project, and there were no funds for research which might have cast doubts on the Project. As of March 1989, the Hungarian Academy of Sciences (HAS) reports, opinions and statements were "strictly confidential" or "confidential" according to Hungarian laws and legally could not be published.[210] However, some HAS documents did leak out as political changes indicated that the secrecy laws might no longer be strictly enforced. Under the circumstances the extent to which concerns were actually raised in this period is striking. That the concerns were not followed by further detailed studies is not surprising, given the political situation.[211] Hungarian scientists occasionally suggested that certain conditions be met before commencing peak power production,[212] and as early as 1983 Hungarian scientists were recommending reassessment of peak power operation.[213] However, studies would only mention concerns and likely impacts but avoid controversial conclusions.

1.88. As the government began to loosen its grip on public affairs, more information became available and demonstrations against the

---

vol 2, Appendix 6), will demonstrate that Hungary attempted in good faith to find an agreed solution.

210 See HR, Annexes, vol 3, annex 55.

211 See discussion in HM, paras 3.57-3.73.

212 See K Perczel *et al*, 17 February 1985, and the *Opinion* of the HAS on his Proposal, 28 June 1985; summarised in HR, Annexes, vol 3, annex 10.

213 J Tóth, *About some predictable ecological problems and environmental impacts of the Gabčíkovo-Nagymaros Barrage System*, 1983, Földrajzi Közlemények (Geographical Transactions) XXXI No 1, pp 1-11 (in Hungarian); summarised in HR, Annexes, vol 3, annex 49.

Original Project increased.[214] Amongst many concerns raised prior to May 1989 by Hungarian, Czechoslovak and international non-governmental organisations was the lack of a comprehensive EIA and the inadequacy of information available for decision-making.[215] It was also said that peak power mode and the Nagymaros barrage were likely to cause the following problems:

* increased sediment deposition;[216]
* colmatation;[217]
* harm to bank-filtered wells, including those which provide Budapest with its water supply;[218]
* risk to karst waters;[219] and
* harm to flora and fauna along the banks of the river.[220]

---

214 As to the extensive protests against the project in both countries (summarised in HR, Annexes, vol 3, annex 90), all Slovakia can say is that "[i]t may be that the Project suddenly became unpopular; but this did not mean that it had become unsustainable from an environmental standpoint": SC-M, para 4.42. Paragraphs 1.100-1.140, below, demonstrate its unsustainability.

215 HAS, Operational Group, 30 April 1983; HAS *Position Paper*, 20 December 1983, HC-M, Annexes, vol 3, annex 36; HAS *Opinion*, 28 June 1985, HC-M, vol 3, annex 39. See also Ecologia/INFORT, *Report*, May 1989, HM, Annexes, vol 5 (part I), annex 6.

216 B Hock, *GNBS Water Quality*, VITUKI March 1985, summarised in HR, Annexes, vol 3, annex 10.

217 HAS Operational Group, 30 April 1983. See also Perczel K *et al*, 17 February 1985. Both summarised in HR, Annexes, vol 3, annex 10.

218 HAS, 1981; Berczik-Tóth, November 1981; HAS Operational Group, 30 April 1983; K Perczel *et al*, 17 February 1985, and the *Opinion* of the HAS on his Proposal, 28 June 1985. The latter noted that some of the participants accepted Perczel's view of harm to bank filtration. See also B Hock, VITUKI, March 1985; L Bárdóczy, S Mikolics, VIZITERV, 1987; *Statement prepared by the Danube Circle*, 4 September 1988; K Zotter, *Studies into water sediment and hydrobiology of the Danube*, VITUKI, 1988; HAS *ad hoc* committee, September 1988; Ecological Section of Czechoslovak Academy of Sciences, 14 November 1988, HC-M, Annexes, vol 3, annex 43; L Somlyódy, *Water quality issues concerning GNBS*, 1989, H-CM, Annexes, vol 4 (part 2), annex 13; INFORT/Ecologia, *Preliminary Report*, March 1989, HM, Annexes, vol 5 (part I), annex 5. These reports are summarised in HR, Annexes, vol 3, annex 10.

219 K Perczel *et al*, 17 February 1985; Á Lorberer, VITUKI, 1987; Á Lorberer, VITUKI, 1988; K Perczel, G Líbik, April 1989; all summarised in HR, Annexes, vol 3, annex 10.

220 HAS, 30 April 1983; GNBS Water Quality, VITUKI, March 1985; *Statement Prepared by the Danube Circle*, 4 September 1988; *Report on GNBS Water Quality Research*, VITUKI, March 1985.; HAS *ad hoc* Committee, September 1988; G Vida, 1989; all summarised in HR, Annexes, vol 3, annex 10.

1.89. By 1989 it had become clear that daily fluctuations of flow and water levels in the Nagymaros Reservoir and downstream would cause serious disturbance to aquatic and riparian habitats, a factor not analysed pre-1977,[221] and would threaten Budapest's water supplies.

(ii) May-October 1989

1.90. Further studies were completed between the initial suspension of construction on Nagymaros in May 1989 and October 1989, when the Hungarian government authorised negotiations with Czechoslovakia with a view to its abandonment.[222] These confirmed that serious concerns remained unanswered, and some recommended that Nagymaros not be completed.[223] Concerns included the following:

* the need for studies on the impact of peak operational mode on the environment;[224]
* colmatation;[225]
* sedimentation;[226]
* impact on bank-filtered wells;[227]
* possible damage to karst waters;[228]

---

221 HC-M, paras 1.150-1.151; *Scientific Evaluation*, HC-M, vol 2, chap 4.4.

222 See discussion in HC-M, paras 2.27 -2.45.

223 WWF, *Position* (in German), August 1989, excerpts translated and reprinted in HC-M, Annexes, vol 4 (part 1), annex 4.

224 Ibid. See also HAS Report, 23 June 1989, HM, Annexes, vol 5 (part I), annex 7.

225 *Remarks of the Szeged Biological Centre*, August 1989; *Remarks of the Bajcsy-Zsilinszky Association*, 20 September 1989; both summarised in HR, Annexes, vol 3, annex 10.

226 HAS Report, 23 June 1989, HM, Annexes, vol 5 (part I), annex 7; Ministry of Environment Protection and Regional Development, *Agenda and Guarantees for the prevention of deterioration of water quality of the Danube*, July 1989; Szeged Biological Centre, August 1989; *Remarks of the Bajcsy-Zsilinszky Association*, 20 September 1989; *Opinion Concerning the material "Assessment of the versions listed in point V, Res 3205/1989 (VII. 20.) of the Hungarian Government"*, 5 September 1989; VITUKI November 1989; all summarised in HR, Annexes, vol 3, annex 10.

227 HAS Report, 23 June 1989, HM, Annexes, vol 5 (part I), annex 7; Szeged Biological Centre, August 1989; Hardi Report, September 1989, HM, vol 5 (part I), annex 8; *Opinion Concerning the material "Assessment of the versions listed in point V, Res 3205/1989 (VII. 20.) of the Hungarian Government"*, 5 September 1989; summarised in HR, Annexes, vol 3, annex 10.

228 Ministry of Environmental Protection and Water Management, July 1989, summarised in HR, Annexes, vol 3, annex 10.

* eutrophication and other impacts on water quality;[229]
* decimation of flora and fauna;[230]
* doubtful seismic stability of certain structures;[231] and
* impact on landscape in a historical part of the Danube.[232]

(b) Upstream: Dunakiliti and Gabčíkovo

1.91. Studies before the fall of 1989 relating to the upstream sector suffered from the same limitations as affected studies of Nagymaros.[233] But they highlighted a number of concerns related to the impoundment at Dunakiliti with its corresponding large reservoir and the significantly decreased water discharge into the Danube.[234] Concerns included:

* lack of the necessary studies upstream[235] (as well as of an EIA for the entire Project);[236]

---

229 *Statement of the General Committee on Microbiology*, 1989; Ministry of Environmental Protection and Water Management, *Agenda and Guarantees for the prevention of the Deterioration of Water Quality of the Danube*, July 1989; Hardi Report, September 1989, HM, vol 5 (part I), annex 8; all summarised in HR, Annexes, vol 3, annex 10.

230 HAS Report, 23 June 1989, HM, Annexes, vol 5 (part I), annex 7.

231 HAS Report, 23 June 1989, HM, Annexes, vol 5 (part I), annex 7; B Goschy, 15 August 1989; Central Geological Office expert committee, 3-7 July 1989 (stating that it is not possible to assess unambiguously the seismic activity of the region owing to lack of adequate research); all summarised in HR, Annexes vol 3, annex 10.

232 HAS, 23 June 1989; HM, Annexes, vol 5 (part I), annex 7.

233 See above, paragraph 1.87.

234 The amount of water to be discharged into the Danube has always been a crucial issue. Studies examined the possibility of the Danube receiving more water. See e.g., WWF, Lösing, 1986, excerpts reprinted in HC-M, Annexes, vol 4 (part I), annex 3; *Report of the Polinszky Commission*, 28 April 1982. Some concluded that even with 500 m^3/s, there would be negative effects on floodplain forests; B Keresztesi, 6 September 1982. Others concluded that the decrease in the groundwater table could alter the production of agriculture significantly, or that the planned 50-200 m^3/s discharge was inadequate to ensure quality of groundwater; see M Erdélyi, 1983. Others insisted that the planned mitigation measures would not work, requiring that 600 m^3/s be discharged into the riverbed at Dunakiliti; K Perczel *et al*, 17 February 1985; *Opinion* of the HAS on his proposal, 28 June 1985; Slovak Environment and Landscape Protectors Association, Bratislava, September 1988; all are summarised in HR, Annexes vol 3, annex 10.

235 J Lösing, WWF, August 1986, HC-M, Annexes, vol 4 (part I), pp 339-348; WWF, *Position*, August 1989, HC-M, Annexes, vol 4 (part I), pp 349-354.

236 HAS, *Summary of the Report on the Agricultural and Environmental Impacts of GNBS*, October 1981; *Report of the Polinszky Commission*, HAS, 28 April 1982;

* negative impacts on surface water quality and eutrophication;[237]
* sedimentation and deposition of toxic materials in the reservoir;[238]
* dangers to drinking water reserves;[239]
* negative effects on groundwater;[240]

HAS, Operational Group, 30 April 1983; HAS, Opinion, 28 June 1985, HC-M, Annexes, vol 3, annex 39; *Opinion* concerning Perczel's Proposal, HAS, 28 June 1985; HAS Report, 23 June 1989, HM, Annexes, vol 4, annex 7; all summarised in HR, Annexes, vol 3, annex 10. See also HAS *Position Paper*, 20 December 1983, in HM, Annexes, vol 5 (part I), annex 2.

237 É Bartalis, VITUKI, 1978; Á Berczik, J Tóth, *Remarks concerning GNBS*, November 1981; B Hock, VITUKI, 1983; J Tóth, 1983; K Perczel *et al*, 17 February 1985; B Hock, *GNBS Water Quality Research*, VITUKI, March 1985; J Németh, F Skobrak, 1985; P Benedek, 1986; Zs T Dvihally, 1987; T Kiss-Keve, 1987; B Hock, VITUKI, 1987; K Zotter, VITUKI, 1988; Slovak Environment and Landscape Protection Association, Bratislava, September 1988; A Bothár, October 1988; L Somlyódy, 1989, HC-M, vol 4 (part 2), annex 13; *Statement Prepared by the Danube Circle*, 4 September 1988; INFORT/Ecologia, *Preliminary Report*, March 1989, HM, Annexes, vol 5 (part I), annex 5; HAS Report, 23 June 1989, HM, Annexes, vol 4, annex 7; Ministry of Environmental Protection and Water Management, July 1989; all summarised in HR, Annexes, vol 3, annex 10.

238 VITUKI, 29 March 1984; *GNBS Water Quality Research*, B Hock, VITUKI, March 1985; Slovak Environment and Landscape Protection Association, September 1988; Ecological Section, Czechoslovak Academy of Sciences, 14 November 1988, HC-M, Annexes, vol 3, annex 43; L Somlyódy, 1989, HC-M, Annexes, vol 4 (part 2), annex 13; INFORT/Ecologia, *Preliminary Report*, March 1989, HM, Annexes, vol 5 (part I), annex 5; M Lisicky, July 1989; all summarised in HR, Annexes, vol 3, annex 10.

239 WWF, *Position*, August 1989, in HC-M, Annexes, vol 4 (part I), pp 349-354. See also Á Berczik, J Tóth, *Remarks on GNBS*, November 1981; HAS Operational Group, 30 April 1983; Perczel *et al*, 17 February 1985; all summarised in HR, Annexes, vol 3, annex 10.

240 E Varrók, VITUKI, 1978; O Haszpra, VITUKI, 1979; I Daubner, 1981; Á Berczik, J Tóth, November 1981; J Holčik, 1982; *Conference on Ecological Questions related to GNBS*, 6 September 1982; M Erdélyi, 1983; HAS Operational Group, 30 April 1983; K Perczel *et al*, 17 February 1985; Research Institute of HAS on Soil Sciences and Agrochemics, *Summary of the Works so far completed in the field of pedology within the framework of the agreement on the co-operation between the Hungarian and Slovak Academies*, 1986; Research Institute of HAS on Soil Sciences and Agrochemics, *Report on the Works done for VIZITERV*, 1986; Research Institute of HAS on Soil Sciences and Agrochemics, *Report on the Works done for VIZITERV*, 1987; Research Institute of HAS on Soil Sciences and Agrochemics, *The Expectable Effects of GNBS on Soils (Summary of works done in cooperation between Hungarian and Slovak Academies)*, 13 May 1987; Slovak Environment and Landscape Protectors, Bratislava, September 1988; Ministry of Environmental Protection and Water Management, July 1989; INFORT/Ecologia,

* likely ecological impacts on river flora and fauna and on the wetlands;[241]
* negative impacts to agriculture,[242] forestry,[243] and soils;[244]
* inconsistency in the response of the designers to the presence of seismic risks, and lack of consultation on this issue.[245]

Preliminary Report, March 1989, HM, Annexes, vol 5 (part I), annex 5; INFORT/Ecologia, *Interim Report*, May 1989, HM, Annexes, vol 5 (part I), annex 6; WWF, *Position*, August 1989, HC-M, Annexes, vol 4 (part 1), pp 349-354; all summarised in HR, Annexes, vol 3, annex 10.

241 I Daubner, 1981; J Holčik, 1982; VITUKI, *GNBS Water Quality Research*, March 1985; Research Institute of HAS on Soil Sciences and Agrochemics, *Report on the works done for VIZITERV*, 1986; J Czifra, 1987; *Statement Prepared by the Danube Circle*, 4 September 1988; Ecological Section, Czechoslovak Academy of Sciences, 14 November 1988, HC-M, Annexes, vol 3, annex 43; P Gulyás, VITUKI, *Hydrobiological conditions of the section of the Danube in the impact area of GNBS*, 1989; INFORT/Ecologia, *Interim Report*, May 1989, HM, Annexes, vol 5 (part I), annex 6; WWF, *Position*, August 1989, HC-M, Annexes, vol 4 (part 1), pp 349-354; all summarised in HR, Annexes, vol 3, annex 10.

242 Á Berczik, J Tóth, November 1981. Other papers analysed whether structures of production could be altered to compensate for changes in natural conditions. See, e.g., *Report of the Polinszky Commission*, 28 April 1982; *Conference held on ecological questions related to the GNBS*, September 1982; HAS Operational Group, 30 April 1983; K Perczel *et al*, 17 February 1985; Research Institute of HAS on Soil Sciences and Agrochemics, *Summary of the works so far completed in the field of geosciences within the framework of the agreement on the co-operation between the Hungarian and Slovak Academies*, 1986; Research Institute of HAS on Soil Sciences and Agrochemics, *Report on the works done for VIZITERV*, 1986; Slovak Environment and Landscape Protection Association, Bratislava, September 1988; all summarised in HR, Annexes, vol 3, annex 10.

243 A Berczik, J Tóth, November 1981; HAS, 30 April 1983; Letter from Keresztesi to the Conference held on ecological questions related to the GNBS, September 1982; Halupa, 1985; Halupa, August 1986; Halupa, November 1986; all summarised in HR, Annexes, vol 3, annex 10.

244 J Holčik, 1982; L Halupa, November 1986; Research Institute of HAS on Soil Sciences and Agrochemics, *Report on the works done for VIZITERV*, 1987; HAS Research Institute on Soil Sciences and Agrochemics, 13 May 1987; *Viewpoint of the 10 member expert team of the Czechoslovak Academy of Sciences commissioned by the Czechoslovak Ministry of Forestry and Water Management*, 18 February 1988; Gy Várallyay, 12 June 1989; all summarised in HR, Annexes, vol 3, annex 10.

245 Prior to 1990, little was known about the nature and extent of the Quaternary deposits in Gabčíkovo; see Dzuppa *et al*, 1994, HR, Annexes, vol 3, annex 8. See also HAS, *Report*, 23 June 1989, HM, vol 5 (part I), annex 7; E Dulácska, F Hunyadi, 10 July 1989, both summarised in HR, Annexes, vol 3, annex 10.

(c) Conclusion

1.92. It is therefore clear that by the second half of 1989, there were serious grounds for concern as to the environmental consequences of the Original Project, in particular about the threats to water resources and to wetland ecology. A substantial response was called for.[246] Hungary did not act unreasonably in seeking to ensure that further studies be carried out, and that no irretrievable steps be taken in the meantime.

(3) THE PROJECT AS IT STOOD IN 1989

1.93. The third sub-question identified at the beginning of this Section is whether the state of work in 1989 precluded reassessment of the Project.[247] The state of work can be expressed in monetary terms (actual investment compared to total planned expenditure) and in physical terms (degree of readiness). To find a common denominator in currency is very difficult because of the artificial exchange rates as between CSK and HUF and with the hard currencies.[248] The ratio of work done compared to total works envisaged in the JCP may be a better solution, but most of the work phases can be expressed in monetary terms only.[249]

---

246 Non-governmental organisations have reviewed the legality of Hungarian actions in relation to the risks posed to Hungary in 1989 and 1992 and found them to be justified. See, e.g., *NGO Memorial of Legal and Scientific Issues*, prepared by Slovak, Hungarian and International NGOs with Expertise in Environment and Development (May 1995); a copy of this document has been put on file with the Court.

247 See above, paragraph 1.61.

248 These difficulties are admitted in SM, Annex 13. After noting the different exchange rates used for commercial payments, tourist exchange rates, etc., it applies the "official exchange rate" which was in use for statistical purposes. As reflected by the difference between exchange rates in 1988 (US$ 1=CSK 5.32) and 1992 (US$ 1=CSK 29.50), the official exchange rates before the transformation to a market economy in no way reflected real purchasing power. There was no bank in Europe, including Czechoslovakia, which would have sold US$ 1 for CSK 5.32 in 1988. The HUF lost 37% of its value against the US$ between 1988 and 1992 (US$ 1=HUF 50.42 in 1988, HUF 78.98 in 1992), but the CSK lost approximately 82%. In the same period the exchange rate of CSK to HUF as between Czechoslovakia and Hungary shifted *in favour* of CSK (from approx 2.2 to 3 HUF/CSK). If the two currencies are compared in 1988 through the US$ an exchange rate of CSK 1=HUF 9.47 results, in sharp contrast to the CSK 1=HUF 2.22 official exchange rate of that year, as determined by interstate agreement. Market forces brought conversion rates closer by 1992 (CSK 1=HUF 2.67 by conversion through US$).

249 No single wall of the Nagymaros hydropower plant had been erected, but it was 30% ready because preparatory work consumed 30% of the budget.

1.94. As set forth here, the total investment costs envisaged for Hungary underwent a drastic increase over time.

Hungary's projected investment costs in case of the full completion of the Barrage System (at 1975 prices)

Year	Source	million HUF
1973	National Water Authority[250]	14 100
1975	Joint Contractual Plan	22 900
1980	Report of the National Water Authority as investor, submitted to the National Planning Office[251]	28 977
1987	Report of the Office of the Accountant[252]	54 116
1989	Economic calculations of the National Planning Office[253]	150 000[254]

1.95. In terms of actual investment incurred, the following figures can be derived from the protocols of the Joint Operational Group:

---

250 Brochure of the National Water Authority, *Gabčikovo-Nagymaros Barrage System*, Budapest, 1973, p 25.

251 *Report of the National Water Authority as investor,' submitted to the National Planning Office*, 23 February 1986.

252 National Office of the Accountant, *Report on the closure of the national investment Bős (Gabčikovo)-Nagymaros Barrage System*. Budapest, 1992.

253 National Planning Office, *Economic calculation concerning the Bős (Gabčikovo)-Nagymaros Barrage System*. Budapest, October 1989. A copy of this report has been put on file with the Court.

254 Total cost in current prices for the state budget, incorporating taxes and interest on loans.

Year, accumulated value	Hungary: expenditures in JCP prices (1975) million HUF Total expected to be: approx. 22.889 million HUF	Hungary actual expenditures million HUF	Czecho-slovakia expenditures in JCP prices (1975) million KCS Expected to be: 11.521 million CSK[255]	Czecho-slovakia actual expenditures million KCS
• 1987	4,253.6	10,533.1	6,975.5	9,334.1
• 1988	7,885.7	16,325.9	8,227.2	11,157.7
• 1989	11,200.1	23,521.4	9,573.1	13.157.7
• 1990	11,879.9[256]	25,666.9[257]	10,364.8	14.357.7
		(with Austrian loan: ca 40,066)		

1.96. By the end of 1989 the parties had spent roughly the same amount of money (Hungary HUF 23.5 thousand million, Czechoslovakia CSK 13.1 thousand million) if the exchange rate between HUF and CSK is calculated at 2.2 HUF/CSK. The Nagymaros barrage was only at a preparatory stage: the coffer dam securing the site of the future construction was only just being built. At Gabčíkovo much of the earth work related to the reservoir and the power canal was ready, rough structures of the hydropower station were mounted but essential elements of the barrage system were still missing. None of the turbines had been mounted, let alone tested; none of the shiplocks were ready, and there was no water in the headrace canal.

1.97. Thus most of the construction at the beginning of 1989 was still reversible. Dams and dykes built in connection with the Barrage System

255 Calculated on the adjusted pricing of the Joint Contractual Plan.

256 This incorporates the value of work done by the Austrian investor.

257 The figure does not incorporate the loan received from Austria: viz ATS 2,881 million (approx HUF 14,400 million).

could have been removed and used for example to replenish the missing sediment in the degraded Danube bed. Some elements of the investment would have been useful as they were (flood protection levees, sluices, etc.) or could have been used for other purposes or in some significantly modified way. The construction of the Nagymaros Barrage in particular had hardly begun.

1.98. At this time Hungary called for a suspension in construction, wishing to examine concerns related to Nagymaros. But it continued construction on the Gabčíkovo section, as reflected in the fact that it spent more than 7 thousand million HUF in current values in 1989, which expressed in the 1975 prices was approximately as much as all the investment done in the first 10 years of the Project (1978-1987). Even by the *end* of 1990, Hungary had spent 41,900 million HUF as against Czechoslovakia's 69,000 million HUF, adjusted to 1990 prices.

1.99. Thus by mid-1989, the preliminary stage of construction at Nagymaros left natural and cultural values of the affected region fully intact or, at least, readily retrievable. Even the more advanced stage of construction on the Gabčíkovo sector would have allowed for a substantial review and modification of plans. Contrary to the Slovak contention, the substantial investment made up to that point had not led to a technical or financial point of no return in terms of the Original Project. [258] In legal terms this is confirmed by the willingness of courts and authorities to halt construction even at a far later stage of completion where the evidence indicates a likelihood of serious environmental harm.[259]

(4) SUBSEQUENT STUDIES CONFIRM CONCERNS ABOUT THE ORIGINAL PROJECT (1989-1994)

(a) The overall position

1.100. Slovakia repeatedly argues that Hungary failed to produce scientific evidence showing that the Original Project was unsustainable.[260] The facts disprove this claim. Between 1989 and 1992, field investigations as well as analysis of the available data were carried out.[261] More recent studies commissioned by Hungary confirm

---

258 SC-M, para 7.132.

259 See HR, vol 2, Appendix 5 for a review of such cases.

260 E.g., SC-M; para 7.01.

261 I Láng, I Banczerowski and Á Berczik (eds), *Annotated References to the Bős (Gabčíkovo)-Nagymaros Danube Barrage System Project*, HAS, Budapest, 1994.

earlier findings.[262] These have been dealt with in earlier pleadings, and in the *Scientific Evaluation*; further material is contained in the *Scientific Rebuttal* in volume 2 of this Reply.

1.101. It can be noted that those who claim that no new or convincing arguments were produced are usually closely associated with the Project implementation.[263] Neither respected Czechoslovak or Slovak academic bodies, nor the international scientific bodies have ever suggested that the concerns were without foundation or did not merit a substantive response.[264] By contrast Slovakia goes so far as to attribute bad faith to Hungary for raising these same concerns.[265]

1.102. Hungary has produced "clear and convincing" evidence of the following essential concerns:

* *As to Nagymaros*: The Barrage would have threatened the reliable drinking water supply of Budapest, diminishing the output of the bank-filtered wells and affecting the quality of the extracted water.[266] It would have thoroughly changed a unique landscape, decreasing its touristic value; drowned Roman and other archaeological sites and about two dozen islands; caused river morphological problems, and drastically affected the flora and fauna of the riparian zones extending to 300-350 km on both sides of the river and its tributaries. By contrast, claimed benefits of navigation and flood protection could have been achieved in other and less costly ways.[267]

* *As to Gabčíkovo*: The Hrušov-Dunakiliti reservoir faced a significant danger of eutrophication, with qualitative deterioration of water recharge into the subsurface waters, in the long run putting at risk a huge drinking water reserve in the deeper layers of the aquifer under Žitný Ostrov and the Szigetköz. The Original Project would have had devastating impacts on floodplain ecosystems, with consequent severe effects on biodiversity of flora and fauna. Yearly agricultural and forestry losses would have

---

262 See *Scientific Evaluation*, HC-M, vol 2, and Annexes, vol 4 (part 1), annexes 6, 7; *Scientific Rebuttal*, HR, vol 2.

263 See, e.g., V Lokvenc, *Position of the Czechoslovak Party*, 26 June 1989 (HM, Annexes, vol 4, annex 167), which is mere unsubstantiated assertion.

264 See, e.g., Ecological Section of the Czechoslovak Biological Society at the Czechoslovak Academy of Sciences; HC-M, Annexes, vol 3, annex 43.

265 See SM, paras 3.35-3.36, 3.40-3.41, 3.53, 3.56; SC-M, paras 5.05-5.62.

266 For the location of those wells see HC-M, vol 5, *Plates 3.8* and *3.9*.

267 See below, paragraphs 1.103-1.112.

amounted to several hundred million HUF on the Hungarian side alone, associated with lack of natural sub-irrigation and soil quality deterioration. Certain structures including dykes were exposed to larger seismic risk than had been taken into account in the design of the Project.[268]

The two components of the Original Project will be dealt with in turn.

(b) Nagymaros (including peak power operation)

1.103. Three areas would have been affected: (1) the impounded Danube reach from about rkm 1823[269] to the Nagymaros barrage at rkm 1696 (Nagymaros Reservoir); (2) the tailwater section downstream of Nagymaros with the two Danube branches around Szentendre Island; and (3) the area further downstream. The Slovak Memorial and Counter-Memorial deny most of the consequences of peak operation, and are largely silent as to the other impacts. In particular, environmental impacts of the large fluctuations in water levels and flow velocities are ignored.

(i) Surface water hydrology

1.104. The water level fluctuation in the Nagymaros headwater section would have been unmatched in large European rivers.[270] Daily water level fluctuations would have reached up to 4.5 m at rkm 1811.[271] By contrast flow would have been stagnant in the tailrace canal and even reversed in the lower part of the Old Danube and the Mosoni Danube at some point in the day.[272]

1.105. Slovakia is unaware that the Nagymaros power station would have operated in peaking mode,[273] with daily discharge fluctuations from 1,000 m^3/s to more than 2,000 m^3/s. At Budapest the level would have varied *up to two metres* on a *daily basis*. The variation in flow

---

268 See below, paragraphs 1.113-1.140.

269 This includes the reach of the main riverbed from about rkm 1823 to 1811 which would be affected by backwater and daily water level fluctuations and flow reversal caused by peak operation at Gabčikovo.

270 Neither the barrage systems at the Upper Danube nor at the Rhine are operated at similar peak operation modes; see HC-M, para 1.211. Further details are provided in the *Scientific Rebuttal*, HR, vol 2, chap 4.2.

271 Much more than the 1 m claimed by SM, para 2.54. See *Scientific Evaluation*, HC-M, vol 2, *Fig 2.5*.

272 See *Scientific Evaluation*, HC-M, vol 2, chaps 3.2.2 and 3.3.2.

273 SM, para 2.36. Cf SC-M, para 7.72.

velocities in the Nagymaros Reservoir would have been between 0.3 to 1.5 m/s.[274]

(ii) Impact on bank-filtered water supplies

1.106. The Original Project threatened serious impacts to Budapest's water supplies. The well-fields to the north of Budapest provide approximately two-thirds of that supply. Both quality and quantity would have been affected.[275]

1.107. Bank-filtered wells upstream of Nagymaros would have also been affected, but primarily in terms of quality.[276]

(iii) Impact on aquatic and riparian habitats and river morphology

1.108. In the Nagymaros Reservoir, daily fluctuations of flow and water levels would have led to permanent disturbance of aquatic and riparian habitats. Similar effects would have been observed downstream because of peak operation.[277]

1.109. Slovakia states that, with peak operation "the flora on the Danube river banks themselves would be affected".[278] In fact bank vegetation would have *disappeared* as a result of rapid daily water level fluctuations on a 120 km long river reach, affecting some of the most valuable near-natural forests stands.[279] Adverse effects on aquatic fauna are completely ignored by Slovakia.[280]

1.110. Peak operation would have put at risk the stability of river banks, dykes and the bed itself. The reach would have suffered from erosion. Near Nagymaros and along the banks of the Danube fine sediments

---

274 HC-M, vol 4 (part 1), annex 6 at p 401.

275 This would result in part from further dredging expected in conjunction with the Original Project, under which low-flow levels were to drop by 0.60-1.20 m to increase the head of the power plant. Further bed degradation could also have been expected due to erosion. The processes are explained in the HC-M, paras 1.112-1.121 and *Scientific Evaluation*, HC-M, vol 2, chap 3.6.

276 These would have been affected by siltation resulting from peak operation. The issues are summarised in *Scientific Evaluation*, HC-M, vol 2, chap 3.6.5.1.

277 See *Scientific Evaluation*, HC-M, vol 2, chap 4.4.2; *Scientific Rebuttal*, HR, vol 2, chaps 3 and 5.

278 SC-M, para 4.26, citing the Hungarian 1985 Impact Assessment.

279 Simon, 1995; HR, Annexes, vol 3, annex 5.

280 See *Scientific Evaluation*, HC-M, vol 2, chap 4.4.1.3 and 4.4.2.4 for a summary of the main effects.

would have accumulated.[281] These effects, in turn, would have affected the water supplies of the reach.[282] Taken together these impacts contradict Slovakia's assertion that "no serious environmental risks ensued".[283]

(iv) Navigation

1.111. Slovakia emphasises and re-emphasises the supposed benefits of the Barrage system for navigation on the Danube.[284] Slovakia is, however, conspicuously silent about benefits to be realistically expected from improved navigation.[285] The waterway is under-utilised at present, and there is little prospect of change.[286] As the Harris-Delft Study demonstrates,[287] there are traditional methods for resolving navigational difficulties in the Nagymaros Reach.

1.112. The claim that the section between Bratislava and Budapest is "the Danube's only major remaining navigational bottleneck"[288] is wrong. There are a number of restrictions in navigability along the fairway Rhine-Main-Danube.[289] Similarly it is misleading to suggest that the Project would "render the Danube navigable day and night for 330 days per year instead of just 120 days per year".[290] In general the

---

281 See *Scientific Evaluation*, HC-M, vol 2, chap 2.3.2.

282 See above, paragraphs 1.106-1.107 and accompanying notes.

283 SC-M, para 4.26, citing the Hungarian 1985 EIA. There would have been other effects as well, which have been described in Hungary's Memorial and remain unrefuted by Slovakia, such as those to landscape and tourism (HM, paras 5.92-5.96) and risks to the significant archaeological sites, remains and artefacts dating back to the Neolithic Period (BCE 3,500-2,500) (HM, paras 5.97-5.98). The seismic risks are addressed below, paragraphs 1.134-1.137, and are discussed in greater detail in the *Scientific Rebuttal*, HR, vol 2, chap 8 and in the *Scientific Evaluation*, HC-M, vol 2, chap 6.

284 See, e.g., SM, paras 2.82-2.83, 5.08; SC-M, paras 1.10, 1.20, 2.14, 7.115-7.117.

285 Slovakia does suggest that the Barrage System would have allowed for a 100% increase of ship traffic on the river. See, e.g., SM, paras 2.82-2.83. That claim was refuted in HC-M, paras 1.178-1.189.

286 There was a 70-75% decline between 1985-6 and 1992-3: HC-M, para 1.185. By comparison, the Rhine carries a much larger traffic (approx 2.5-2.9 times more, depending on years compared) on a much smaller waterway, nowhere exceeding the general parameters of the Danube before 1992.

287 The Harris-Delft Study (1994) which concluded that navigational problems in the reach could be solved by traditional methods has been put on file with the Court.

288 SM, para 1.20.

289 For details see *Scientific Rebuttal*, HR, vol 2, chap 3.3.

290 SC-M, para 7.115.

Danube was navigable throughout the year.[291] It was simply that certain vessels[292] on certain days[293] could not pass certain sections. The only period when the Danube was not navigable at all was when both Gabčikovo shiplocks were out of action for five weeks.[294]

(c) Gabčikovo and Dunakiliti

1.113. In the upstream sector of the Project, impacts and risk are different in detail than for Nagymaros, but are likewise substantial.[295]

(i) Surface water hydrology

1.114. In 1978 the Original Project envisaged a mere 50 m^3/sec discharge into the main riverbed during eight months a year, 18.9 m^3/s seepage during the winter months from under the weir and allowed for an increase of up to 200 m^3/s "in case of necessity in growth season".[296] The Hungarian side branches were to receive between 17 and 34 m^3/s, depending on the season and state of colmatation. In accordance with all independent assessments – and an undisclosed CSFR assessment as well[297] – this was still grossly inadequate.[298] But all the efforts by Hungary to amend the Joint Contractual Plan in this regard failed, contrary to Slovak assertions that 350 m^3/s for the main riverbed and 1,300 m^3/s weekly flushings had been incorporated into the plans.[299]

---

291 Except in case of ice. During 1992-1993 there was not a single icy day at Komárom: Commission du Danube, *Annuaire Hydrologique du Danube, 1995*, p 88.

292 Slovakia offers no statistics indicating the percentage of vessels actually loaded to have a draught deeper than 2.5 m.

293 In the period 1976-1985 there were on average 84 days annually limiting the navigation of vessels with more than 2.0 m draught on the Vienna-Bratislava reach. SC-M, para 8.43 implies a desperate navigation situation at Nagymaros on 17 June 1993 – but the gauge reading on that day was 78 cm *above* the navigational low-flow level (which is a reading of -10 cm) agreed by the Danube Commission: see *Scientific Rebuttal*, HR, vol 2, chap 3.3.

294 HC-M, para 3.93.

295 See *Scientific Evaluation*, HC-M, vol 2, chaps 2-5; *Scientific Rebuttal*, HR, vol 2, chaps 3-6.

296 HC-M, Annexes, vol 3, annex 35 at p 91.

297 SM, para 2.69; SC-M, para 4.33.

298 See Technical Description and Economic Assessment of the Temporary Commencement of Operations at the Gabčikovo Hydroelectric Power Plant, June 1991; HR, Annexes, vol 3, annex 77. See also *Scientific Evaluation*, HC-M, vol 2, chap 3.2.2 and paragraph 2.34, below.

299 SM, paras 2.69, 5.41; SC-M, para 4.33.

1.115. Slovakia repeatedly refers to the sinking riverbed and the lowering groundwater table, which could only be counterbalanced by the impoundment in the reservoir and by low weirs in the main riverbed.[300] Far from the Original Project being needed, it seems likely that these processes were *generated* by and in the expectation of the Project.[301] At certain reaches of the river aggradation continued even with navigational dredging.[302]

1.116. Evidence of the negative effects of dredging and other intervention measures affecting the groundwater table comes from a recent study published by J. Cifra, the former director of the Gabčíkovo Forest Research Station, which describes the process as follows:

> "After 1975 in the region below Bratislava, willows and poplars have dried out, initially only sporadically, but in the following three years entire tree populations died... The process is due to the waterlevel decrease, that in turn is the result of uncoordinated measures. These consisted primarily of the dredging of the Danube, the blocking of the branches of the Danube, a construction of a hydraulic screen below Bratislava to stop the pollution of the groundwater, a construction of a blocking wall to protect a new housing development from the high groundwater, and the development of a series of sites for watersupply. Due to these uncoordinated measures, groundwater level decreased by approximately 2.5 metres. It is true that this decrease varied in certain specific instances, i.e., were considerably greater."[303]

1.117. The Original Project, anyway, entailed much more serious risks than it was said to cure. The 50-200 m^3/sec planned discharge would have led to a drastic drop in surface[304] and groundwater[305] levels. In the last few kilometres, the river would have flowed backwards in times of peak operation. Side branches would have been cut off from the main river. Water level fluctuations vital to a riverine wetland would have

---

300 E.g., SM, para 2.86.

301 See HC-M, paras 1.67-1.68.

302 HC-M, paras 1.61-1.68; *Scientific Evaluation*, HC-M, vol 2, chap 2.2.2; HC-M, Annexes, vol 4 (part 1), annex 6; *Scientific Rebuttal*, HR, vol 2, chap 3.1.

303 J Cifra, *The Collapse of the Ecological Balance of the Forest Associations of the Floodplain below Bratislava*, VEAB Ecological Studies, Veszprém, 1987, pp 215-225.

304 *Scientific Evaluation*, HC-M, vol 2, chap 3.2.2 and *Scientific Rebuttal*, HR, vol 2, *Fig 7.1a*.

305 HC-M, Annexes, vol 5, *Plate 3.11*.

only occurred over about 12 days per year, and only to a limited extent; large floods covering the whole active floodplain were to be expected only once in every 10-25 years.[306] All this would have led to loss of the natural values to be found in the Szigetköz,[307] even if mitigation measures – such as the artificial supply of water into the side branches – might slow down the process.[308]

(ii) Surface water quality

1.118. Slovakia accepts that since Danube water is rich in nutrients "there is always a potential for 'eutrophication'",[309] especially since water velocity in some parts of the reservoir would be greatly reduced.[310] This was precisely the Hungarian concern.[311] Eutrophication can have devastating effects. The cost of remedying eutrophication in France was estimated at FF 1000-1270 million, quite apart from damages for lost tourism in the range of FF 300-470 million.[312]

1.119. The reduction of discharge in the main riverbed risked eutrophication of stagnant water bodies in the branch system.[313] In pre-Project conditions the main riverbed was the source of recharge into the aquifer, and the inferior quality of the water in the side branches did not significantly affect deep subsurface waters. With the emptying of the main riverbed, the significance of the side branches increases.[314]

(iii) Groundwater

1.120. As to groundwater flows, levels throughout the extensive aquifer of the Szigetköz and adjacent areas were determined by Danube water

---

306 For further details see *Tables 2.2* and *2.3* in *Scientific Evaluation*, HC-M, vol 2, at pp 20, 22.

307 See below, paragraphs 1.125-1.130.

308 See below, paragraphs 1.141-1.144.

309 SC-M, para 7.33; see also para 7.34.

310 SC-M, para 7.34.

311 The Bechtel Report is claimed (SC-M, para 7.38) to predict improvement in water quality, but it also envisaged the potential for deterioration (see HC-M, para 1.95; HC-M, Annexes, vol 4 (part 1) at 37). On the possibility of massive increases in chlorophyll-a concentration in the reservoir see *Scientific Evaluation*, HC-M, vol 2, *Fig 3.6*.

312 Agence de l'Eau Loire-Bretagne, *Une stratégie de lutte contre l'eutrophisation*, June 1992, Orléans.

313 See *Scientific Rebuttal*, HR, vol 2, *Fig 7.1*.

314 See detail in *Scientific Rebuttal*, HR, vol 2, chap 4.3.

levels. High water-table conditions occurred in the summer as a result of the seasonal pattern of Danube flows, and thus coincided with the period of maximum vegetation demand for water. This provided the environmental conditions to support the wetland vegetation of the Szigetköz and, where groundwater levels rose into the fine soil over the alluvial aquifer, natural sub-irrigation was provided to support agricultural crops.

1.121. Simulation results of the impact of the Original Project were reported in the Hungarian Counter-Memorial.[315] A radical change in the regional flow patterns was demonstrated. Instead of occurring from the Danube channel, recharge mainly occurred from the reservoir and from the floodplain side-arm system. Average groundwater levels were predicted to increase near the reservoir, but to decrease in the riparian wetlands by in excess of 3 m. However, groundwater variability would also be reduced, leading to larger decreases in peak groundwater levels. An area of 300 km^2 was shown to suffer groundwater decrease on the Hungarian territory: sub-irrigation would have been reduced or be totally lost over an area of 167 km^2.[316]

1.122. Changes could also be expected in the quality of groundwater. Recharge from the Danube main channel was typically of high chemical quality. The change in recharge sources that would have occurred with the Original Project would have carried an important risk of water quality degradation. Fine sediments would have been deposited in the reservoir. The sediment layer could have been expected to decay. Organic decomposition consumes oxygen and can lead to chemically reducing conditions, and hence the mobilisation of iron, manganese and ammonium. Such effects were predicted for the reservoir and have already been observed to occur in the side-arm system.[317] International experience of Austrian and German reservoirs has shown that serious groundwater problems may be generated by reservoirs.[318]

---

315 Ibid. *Scientific Evaluation*, HC-M, vol 2, chaps 3.3-3.5 and HC-M, vol 5, *Plates 3.10-3.12, 3.15, 3.16*.

316 See for further detail, *Scientific Rebuttal*, HR, vol 2, chap 4.4.1.

317 *Scientific Evaluation*, HC-M, vol 2, chap 3.5.2. Such effects can be quite dangerous. For example, I Mucha notes that the high nitrate content of the Žitný Ostrov has caused methemoglobinemia in babies: HC-M, vol 4 (part 2), annex 11, p 498.

318 *Scientific Evaluation*, HC-M, vol 2, chap 3, pp 96-97; see also HM, Appendix 3, pp 394-395.

1.123. The potential for these problems as a result of the Dunakiliti-Hrušov Reservoir has been underlined by Hungarian,[319] Slovak[320] and international[321] scientists. These processes are likely to develop over a period of years, and the polluted water will propagate through the aquifer over a time-scale of decades.[322] Propagation times have been estimated for the aquifer using isotopic tracers.[323] The *Scientific Rebuttal* and the discussion of the threats posed by Variant C address in detail the Slovak assertions that Hungary overstates the potential of the aquifer and the risks posed by the Project to the aquifer.[324] Nonetheless, although presently only used to a limited extent, it is a long-term reserve of great significance.[325]

(iv) Colmatation

1.124. The inter-relationships between surface water and groundwater are fundamental to the determination of the impacts of the Project with respect to groundwater recharge, groundwater quality, and the effectiveness of remedial measures. These issues have been discussed in detail in the *Scientific Evaluation*,[326] and are dealt with below in the discussion of impacts of Variant C and in the *Scientific Rebuttal*.[327] Hungary had feared that significant sediment deposition would take place in the Dunakiliti-Hrušov reservoir. Because of the large decrease in

---

319 See e.g., HM, Annexes, vol 5 (part I), annex 10, pp 317-318.

320 See, e.g., the studies of M Lichvár, Z Zekeova and J Lehocky, 1990, summarised by Slovak Union of Nature and Landscape Protectors, HM, Annexes, vol 5 (part II), annex 17, pp 634-636; I Mucha, E Paulikova, 1991, in HM, Annexes, vol 5 (part I), annex 11, p 322.

321 See, e.g., Hydro-Québec Report, HM, vol 5 (part I), annex 9, referring to the possibility of "total colmatation of the reservoir" (p 231), as well as to remedial measures. See also Bechtel Report, HC-M, vol 4 (part 1), annex 1, p 31, which corresponds to SM, vol 3, annex 27, p 210.

322 It is quite wrong to imply that because degradation is expected to be a long-term process or because Hungary's risk assessment lacks certainty, the threat is not serious. See SC-M, para 7.51. See *contra Scientific Rebuttal*, HR, vol 2, chap 4.4.1.

323 *Scientific Evaluation*, HC-M, vol 2, chap 3.4.1.1.

324 See below, paragraphs 2.59-2.63. The threats and risks are described in more detail in the *Scientific Evaluation*, HC-M, vol 2, chaps 3.4-3.5.

325 As recognised in the Slovak PHARE Application; HC-M, Annexes, vol 3, annex 48.

326 HC-M, vol 2, chap 3.4.

327 See below, paragraphs 2.44-2.80, and see further *Scientific Rebuttal*, HR, vol 2, chap 4.5 for a rebuttal of the Slovak contentions which include, *inter alia*, that colmatation had been studied carefully by the parties and that flushing of fine sediments is sufficient to guarantee good infiltration conditions.

water supplied to the main riverbed, reservoir infiltration would be the most important source of recharge to the regional aquifer. This recharge would be restricted by the colmatation processes.[328] Further, the implementation of a side-branch supply system was envisaged as a mitigation measure to substitute for the lost recharge capacity of the main channel downstream of Dunakiliti. Recent research results, however, indicate that the recharge of the aquifer via side-branches is not just a question of surface colmatation, but rather complex process depending on transmissivity of subsurface layers and the gradient of the groundwater table to the main channel.[329]

(v) Flora, fauna, fisheries

1.125. The word "biodiversity" does not appear in the Slovak pleadings. Slovakia presents the issue of flora, fauna, biodiversity and nature protection in the spirit of the 1960s, uncomfortably adding that values of the affected region should be protected, but treating both Žitný Ostrov and the Szigetköz as "primarily agricultural in nature."[330] The fact that these are among the few remaining intact floodplains in Europe and form the last major inland delta in Europe, the remnant of an ancient inner delta of the Danube of three million years ago, goes unremarked.[331]

1.126. Before 1992, a certain drop of groundwater levels could be observed.[332] However it only resulted in slight changes of plant communities. Several serious droughts during this time are equally responsible for the slight drying in the last 10 years. But no essential changes in species composition appeared before autumn 1992.[333]

---

328 See *Scientific Rebuttal*, HR, vol 2, chap 4.5.

329 Ibid.

330 SC-M, para 7.86 states that the Hungarian Memorial is talking "nonsense" when referring to 6,000 ha and 23,000 ha of floodplain affected by the Original Project "in the Gabčíkovo sector" (HM, para 5.20, referring to Equipe Cousteau Final Report, HM, Annexes, vol 5 (part I), annex 16, p 29). The charge is invalid. The figures relate to the pre-Project state and to the whole Gabčíkovo sector from Bratislava (1867 rkm) to Sap (1811 rkm). The Hrušov reservoir itself annihilated approx 5,000 ha of floodplain.

331 See HM, para 5.20; HM, Annexes, vol 5 (part II), annex 16. See also M Dynesisus and C Nilsson, 1994, *Fragmentation and Flow Regulation on River Systems in the Northern Third of the World*, 266 *Science* 753. For the experience with other major European rivers see "Some Major Dam Disputes", see HR, vol 2, Appendix 5.

332 *Scientific Rebuttal*, HR, vol 2, *Plate 4.3*.

333 HR, Annexes, vol 3, annex 5.

1.127. Results of the six years of the botanical monitoring system before 1992 showed that although the biota and vegetation of the Szigetköz underwent certain changes,[334] substantial areas carrying the natural wetland vegetation were still preserved and the entire region had maintained its wetland character.[335] This unique area had preserved its original biocoenoses possessing 1,008 species of vascular plants, 10% of which are protected including Red Listed and endemic species. 80 plant communities are identified, clearly exceeding the number for similar floodplains at Wallsee or in the Vienna Basin in Austria and in the vicinity of Baja in Hungary. During the study of willow woods and riparian softwood forests, it also became apparent that the degree of degradation of forests and meadows was much lower on the wet floodplain of the Szigetköz than elsewhere in the Danube valley.[336] This contrasts with the Slovak depiction of an ecology in irreversible decline.[337]

1.128. The Slovak allegation that as an "historical fact"[338] "regular water fluctuations [in the Hungarian branch system] simply did not occur due to the region's isolation from the main river"[339] is incorrect for the reasons described in the *Scientific Rebuttal*. Indeed, Czechoslovakia acknowledged that, in addition to "the development of the effected Zitny Ostrov under ground water supply, especially from a water quality viewpoint", the disturbance of the dynamics of the ecosystems of the region and the endangering of the floodplain forests, terrestrial and aquatic fauna and flora linked to it presented unresolved problems.[340] Later research has confirmed this view.

1.129. The Original Project would have destroyed about 4,500 ha of the floodplain's vegetation potential completely and about 3,500 ha partially (*Plate 5.3*). Most importantly, the complete willow-poplar forest (zone I),

---

334 E.g., there had been a slight drop of groundwater levels. See *Plate 4.3*.

335 See *Plate 5.2* showing potential floodplain vegetation as of 1992. See also HR, Annexes, vol 3, annex 5.

336 See details in *Scientific Rebuttal*, HR, vol 2, chap 5.1.

337 See, e.g., SM, paras 1.57-1.72; SC-M, paras 7.22-7.39, 7.81-7.83, 7.99-7.104.

338 SC-M, para 7.100.

339 SC-M, para 7.99.

340 Position of the Czechoslovak Governmental Delegation, 11 July 1991; HM, Annexes, vol 4, annex 52. This Position Paper was in response to a document which had been handed over to Czechoslovakia on 9 January 1991 by the Hungarian Plenipotentiary. The Hungarian document had identified areas of concern referencing a 59 item bibliography of studies carried out prior to 1989; HM, Annexes, vol 4, annex 41, p 86. It is remarkable that Slovakia neither annexed nor discussed this Position Paper in its pleadings.

with an average width of 3 km in the Szigetköz active floodplain, would practically disappear over an area of approximately 6,500 ha, together with its associated pondweed-marsh habitats. Wet forests and meadows (zone II) were only expected to survive with reduced vitality in a patch near the Dunakiliti-Hrušov Reservoir. The potential willow-poplar zone would be replaced by dry forests and grasslands (zone IV) on approximately 1,000 ha and by a mosaic of dry and damp (mesophilic) forests and meadows (zones IV and III) on approximately 2,000 ha. Two major patches of this mosaic would develop in the protected floodplain outside the dykes on an area of almost 5,000 ha. The character of the entire vegetation inside the dykes would change due to the lack of regular floods, i.e., never more will there be alluvial vegetation, but rather it would have become a mixture of common floodplain species and additional lowland species.[341]

1.130. Anticipated impacts of the Project on the aquatic fauna can best be studied looking at river reaches, which underwent similar alterations in flow regime. Austrian studies of benthic invertebrates demonstrate clearly the impacts of channelisation, impoundments and peak operation on the ecological quality of river sections with respect to faunal composition, the details of which are described in the *Scientific Rebuttal*.[342]

(vi) Soils, agriculture, forestry

1.131. Here again the Slovak picture of decline[343] does not reflect the data. Agricultural output rose dramatically between the 1960s and 1980s, partly due to modern production technologies. No decrease in timber productivity[344] was experienced in the decades before the implementation of Variant C.[345]

---

341 See *Scientific Rebuttal*, HR, vol 2, chap 5, for more detailed discussions of effects of the Project on flora and fauna.

342 *Scientific Rebuttal*, HR, vol 2, chap 5. See also, Nesemann and Moog, 1995; HR, Annexes, vol 3, annex 4.

343 SM, paras 1.57-1.58. "The impressive level of recent Slovak research into the Project's impact" (SC-M, para 7.92, note 129) in areas of soils and agriculture is represented in a 7-page typewritten document (SC-M, Annex 23), only 2 pages of which deal with irrigation and the soil moisture regime after the start of Variant C. Not a single reference is given to supporting studies or maps identifying affected areas.

344 As inferred by SC-M, paras 7.92, 7.94, 7.98, 8.33.

345 See *Scientific Rebuttal*, HR, vol 2, chap 6.2.

1.132. Short-term impacts of the Original Project would have involved a loss of natural sub-irrigation over large areas of the Szigetköz.[346] For agriculture a loss of productivity and susceptibility to drought would have had severe consequences for the local economy, which were estimated at HUF 90-100 million each year.[347] In the long term, soil structural change and modification of the soil nutrient status were expected, as described in the *Scientific Evaluation*.[348] A more recent analysis of detailed agricultural and soils data[349] allows further definition of the soil water effects. In *Plate 6.2*, the data on the average depth of groundwater in the growing season, based on an agricultural monitoring programme between 1980 and 1992, is combined with soils information to identify the conditions of natural sub-irrigation before dam construction. An examination of the studies filed with the Court by Slovakia[350] demonstrate that the Slovak scientists were well aware of the potential for serious long-term adverse effects to soils and agricultural productivity due to implementation of the Original Project.[351]

1.133. As to forestry, the decrease in the groundwater table, the lack of inundations, and the changes in the soil structure would have caused long-term damage, estimated at about HUF 140 million each year based on lower average yields.[352]

---

346 Quantified in *Scientific Evaluation*, HC-M, vol 2, chap 3.4.

347 *Scientific Evaluation*, HC-M, vol 2, chap 5.2.2. Irrigation could have assisted, but would have entailed investment and operating costs; in any event there would have been further deterioration of the soil conditions after a few years; *Scientific Evaluation*, HC-M, vol 2, chap 5.1.6; *Scientific Rebuttal*, HR, vol 2, chap 6.1.

348 *Scientific Evaluation*, HC-M, vol 2, chap 5.1.6. The *Scientific Rebuttal*, HR, vol 2, chap 6.1.3 contains a rebuttal of the Slovak assertions relating to soils and agriculture in the context of the Original Project.

349 E Molnár, G Palkovits and K Rajkai, *Evaluation of the effect of the Danube Hydroelectric Barrage System on Soil properties and Agricultural Production in the Szigetköz Region*, Budapest, 1995. A copy of this study has been deposited with the Court.

350 HR, Annexes, vol 3, annex 7.

351 See *Scientific Rebuttal*, HR, vol 2, chap 6.1.2.

352 *Scientific Rebuttal*, HR, vol 2, chap 6.2.2. For a discussion of forestry issues, see *Scientific Rebuttal*, HR, vol 2, chap 6.2 and *Scientific Evaluation*, HC-M, vol 2, chap 5.3.

(vii) Seismology[353]

1.134. Slovakia chooses to interpret a lack of detailed *geological* data as "alleged ignorance of the region's *seismic* conditions".[354] Adequate geological information is essential to the assessment of seismic hazard; the insufficiency of the information available was evidenced by the need for the DANREG project.[355]

1.135. The seismic design parameters, which were set in 1965, required revision to bring them into line with modern concepts of risk and design; furthermore, the seismic performance of the embankments and their foundations were felt to be questionable.[356] Although the location of the barrage was changed in response to the presence of a fault near Gabčíkovo, moving the barrage by 700 m would only protect the structure from differential displacement across the fault; the effects of ground shaking would not be diminished over such a small distance.

1.136. The capability of the region to produce strong motion has been appreciated for some time; it is not a "myth", nor was it "invented by Hungary".[357] Although Slovakia suggests that existing embankments are safe up to 7.5 to 8.0 MSK,[358] this is less than necessary. A preliminary appraisal of hazard suggests that liquefaction and failure within the foundations of the embankments could occur under the "worst case scenario".[359] Moreover, the independent studies referred to have not properly researched liquefaction risks.[360]

1.137. Slovakia claims that a seismic network is in place, and that no station has registered an earthquake of any value.[361] If a network were in place, it could not have failed to detect the earthquakes observed at Győr

---

353 See *Scientific Evaluation*, HC-M, vol 2, chap 8; HC-M, paras 1.157-1.171.

354 SC-M, para 7.105.

355 See Dzuppa *et al*, 1994; HR, Annexes, vol 3, annex 8.

356 HC-M, para 1.162.

357 SC-M, paras 7.105-7.114. See e.g., Lokvenc and Szántó, 1986, quoted in the *Scientific Rebuttal*, HR, vol 2, chap 8.

358 SC-M, para 7.112.

359 See *Scientific Evaluation*, HC-M, vol 2, chap 6.

360 The HQI Report, referred to in SM, para 2.60, cites a liquefaction assessment using the Seed-Idriss approach: it made no attempt to re-appraise the risk, applying accelerations appropriate to a maximum credible event. As outlined in the *Scientific Evaluation*, HC-M, vol 2, chap 6, liquefaction can be demonstrated in such an event.

361 SC-M, para 7.113.

in 1990 and 1993.[362] Slovakia may have confused the installation of strong motion recorders with a seismic network, which neither fulfils the function nor satisfies the need for a network.[363]

(viii) Risk of ice

1.138. In a large reservoir – only necessary for peak energy production – a solid ice cover would form in most winters, increasing the risk of ice jams with a subsequent rise of water levels possibly overtopping dykes – even at average discharges. The safe release of broken ice is one of the most difficult tasks in reservoir operation.[364]

(ix) Navigation

1.139. The Gabčíkovo sector did not pose navigational problems with a single exception at rkm 1814, which could nonetheless be negotiated.[365] The removal of navigational obstacles was and still is possible by means of traditional river regulation.[366]

(x) Flood control

1.140. Slovakia regrets Hungary's failure to mention "the enormous benefit provided by the Project in terms of finding a long term solution to the Danube's tendency to severe flooding".[367] In fact, those benefits had already been achieved by traditional means.[368] After the 1965 flood the Parties agreed to raise the design level and flood safety to the level of the 100 years flood. As a result there were no difficulties with subsequent floods, including that in 1991 which was larger than the 1965 flood depicted in the Slovak Memorial.[369]

---

362 See *Fig 8 5* in *Scientific Rebuttal*, HR, vol 2, chap 8.

363 *Scientific Rebuttal*, HR, vol 2, chap 8.4.

364 See *Scientific Evaluation*, HC-M, vol 2, chap 2.3.3.

365 HC-M, Annexes, vol 4 (part 1), annex 8, p 440.

366 Delft Hydraulics, FR Harris, VITUKI, *Danube Environmental and Navigation Project Feasibility Study. Rajka-Budapest Stretch B1: Szap-Ipoly Mouth. Final Report*, October 1994, p 8-2.

367 SC-M, para 7.120.

368 A detailed analysis is offered in HC-M, Annexes, vol 4 (part 1), annex 9.

369 SM, para 1.33 and illus 17.

(5) PROPOSED REMEDIAL MEASURES WOULD NOT HAVE SOLVED THE MAJOR PROBLEMS

1.141. The fifth and final sub-question identified in paragraph 1.61 above was whether the major problems and risks posed by the Original Project could have been addressed by specific remedial measures. In Slovakia's view, the problems and risks could have been resolved by the following modifications into the Plans for the Original Project:

* a "flow of 350 m^3/s";[370]
* "the construction of underwater weirs" in the riverbed;[371]
* weekly releases of 1300 m^3/s.[372]

None of these proposals had been incorporated into the Original Project by 1991.[373] The important proposal of substantial weekly releases was never communicated to Hungary and does not now form part of the management regime for Variant C.[374]

1.142. That leaves the so-called "underwater weirs". In fact their design was never finalised.[375] Two alternatives were studied by Hungary prior to the drafting of the JCP,[376] but they would have been unfavourable for ice releases and emergency navigation: the crests of even the smallest weirs were 3-4 metres above the riverbed. Only in June 1989, after Hungary's suspension of construction at Nagymaros, did the Government Plenipotentiaries decide that 7-8 rip-rap weirs about 1.0 m above riverbed level should be designed.[377]

1.143. Even if these had become part of the Project, they would not have achieved Slovakia's aims. The *Scientific Rebuttal* demonstrates that Slovakia is wrong in stating that with a "flow of 350 m^3/s...such weirs would have maintained the main channel at its pre-Project level

---

370 SM, para 5.41; SC-M, para 4.33.

371 SM, para 2.101 ("it could have been expected that the impact on Szigetköz ground water levels would have been minimal"); see also para 2.113.

372 SM, para 2.69 (weekly flushings); SC-M, para 4.33 ("periodic" flushings).

373 See above, paragraph 1.114.

374 See above, paragraph 1.77.

375 The JCP Summary Documentation (1978) envisages "bottom sills" in the Danube in the "event of need"; HM, Annexes, vol 3, annex 24, p 326.

376 VIZITERV, *Regulation of the inundation of the Old Danube*, GNBS, Joint Contractual Plan, Studies, 19.222 E-V-4.18. 1976. For a description see *Scientific Rebuttal*, HR, vol 2, chap 7.1.2.

377 SM, Annexes, vol 4, annex 58, p 9.

corresponding to the natural flow of 1300 m^3/s".[378] Moreover they would have had long-term detrimental effects.[379] The crucial point is that no artificial discharge regime could create habitat conditions that are typical of a free-flowing river. Dr Jäggi[380] comments:

> "A full realisation of this system [a series of submerged weirs] would result in a series of lakes, through which the water would flow only very slowly. The Danube would completely lose its character of a running water, a character for which an intensive fight is on between Vienna and Hainburg."[381]

1.144. To conclude, the design of the Original Project had inherent flaws in its underlying assumptions. To mitigate groundwater level reductions it is necessary to reproduce high water levels in the main riverbed. But weirs result in serious long-term adverse consequences and without a high discharge into the Danube have very limited effect. If the Original Project had been modified to allow for a high water level in the main riverbed, it might have been ecologically acceptable. But that would have impacted on the economics of an already economically dubious project.[382]

SECTION D. THE CONDUCT OF THE PARTIES[383]

1.145. According to Slovakia, Hungary was determined to abandon the Project as early as May 1989,[384] but at latest when the Hardi Report was produced in September 1989;[385] thereafter it negotiated in bad faith with no intention of returning to the Original Project in any form.[386]

---

378 SM, para 5.41. These types of weirs do not re-establish water levels, but locally protect cross-sections. See *Scientific Rebuttal*, HR, vol 2, chap 7.1.3, esp *Fig 7.1*.

379 Summarised in *Scientific Rebuttal*, HR, vol 2, chaps 7.4-7.5; *Scientific Evaluation*, HC-M, vol 2, chaps 2.5, 4.6.1; see also HC-M, paras 3.101-3.122.

380 Whose views are fully endorsed by Slovakia; SC-M, para 8.03.

381 HR, Annexes, vol 3, annex 3. Details of the Hainburg conflict are contained in HR, vol 2, Appendix 5.

382 See HR, Annexes, vol 3, annex 92; see also Norgaard, HR, vol 2, Appendix 4.

383 As to the period before 1989, Hungary has nothing to add to the discussion in HC-M, chap 2. As demonstrated there, earlier controversies have only indirect relevance to the present dispute.

384 SC-M, paras 5.05-5.07. This is significantly different from HM, para 3.74.

385 SC-M, para 5.29.

386 SC-M, para 5.01.

1.146. In fact, substantial evidence supporting Hungarian concerns was available by May 1989, when construction of Nagymaros was suspended.[387] Thereafter Hungary sought by negotiations and investigations to reach a sound conclusion in agreement with competent Czechoslovak bodies about the Project and necessary mitigation measures. It acted throughout in good faith, and only moved to terminate the Treaty in April 1992, faced with the continued refusal of Czechoslovakia to suspend implementation of Variant C.

1.147. The history of the intergovernmental negotiations in the period 1989-1992 has already been told in earlier pleadings.[388] Once the Court comes to the conclusion that Hungary was acting in good faith in an attempt to resolve genuine concerns about the Project,[389] that history has a somewhat limited relevance to the dispute. The essential issues are the factual, scientific and legal questions canvassed elsewhere in this volume. Volume 4 of this Reply is a fold-out chronology of the dispute from 1988 through February 1994, which may assist the Court in following the details of the negotiations and other developments.

1.148. For these reasons, it is not proposed to go over this ground in further detail in this volume. Appendix 6 responds in detail to those aspects of the Slovak Counter-Memorial dealing with the history of the dispute which require a response.[390] The conclusions of that Appendix may be summarised as follows:

* the Hungarian decision to suspend construction was based on a well-founded concern for the environmental risks of the Project and consistent with the principles of good governance (HR, volume 2, Appendix 6, paragraphs 3, 5 and 27);

* at all times Hungary demonstrated a genuine willingness to negotiate in good faith to achieve a mutually acceptable agreement, if necessary by an appropriate amendment of the 1977 Treaty and settlement of financial losses (HR, volume 2, Appendix 6, paragraphs 7, 23-26, 36);

---

387 See above, paragraphs 1.87-1.89.

388 See HM, paras 3.109-3.186; SM, paras 4.01-4.103; HC-M, paras 2.26-2.88; SC-M, paras 5.01-5.112.

389 See HC-M, para 2.119 where it is argued that Hungary's conduct would be inexplicable if it was acting in bad faith. Bad faith is in any event not to be presumed, and has certainly not been proved in this case, by reference to the Marjai letter or otherwise: see HC-M, paras 2.118-2.128.

390 See HR, vol 2, Appendix 6.

* in contrast, Czechoslovakia became increasingly inflexible, insisting upon the continued construction of the Project according to the original plans, while offering little more than a brief investigation of unspecified "ecological guarantees" (HR, volume 2, Appendix 6, paragraphs 28-30, 35, 38).

* Hungary actively sought third-party assistance in the resolution of the dispute, accepting the reasonable terms of EC involvement which Czechoslovakia dismissed as unacceptable "preconditions" contrary to its firm intention to implement Variant C (HR, volume 2, Appendix 6, paragraphs 34, 45-51).

SECTION E. SUMMARY OF CONCLUSIONS IN THIS CHAPTER

1.149. By way of summary this Chapter has drawn the following conclusions which are relevant to the legal issues addressed in Chapter 3 of this Reply:

(1) As envisaged by the 1977 Treaty the Original Project had two fundamental objectives which defined its character: a political objective (paragraphs 1.03-1.06) and an economic objective (paragraphs 1.07-1.11).

(2) In giving effect to these two objectives the 1977 Treaty provided for a flexible, framework approach to be implemented through a subordinate instrument, the Joint Contractual Plan (paragraphs 1.14-1.17), and it was to be applied in the context of a series of related international agreements (paragraphs 1.18-1.21). In particular there was no intention to exclude applicable international environmental norms as they evolved (paragraphs 1.34-1.41), including the obligation to cooperate in the Project's evolution (paragraphs 1.42-1.44), to ensure sustainable development through the integration of environmental and developmental objectives (paragraphs 1.45-1.50), and to be informed by a preventive and precautionary approach to environmental protection (paragraphs 1.51-1.58).

(3) The 1977 Treaty did not vest in Czechoslovakia any proprietary rights in the waters of the Danube (paragraphs 1.28-1.29), and it did not establish any form of "objective regime" (paragraphs 1.22-1.27).

(4) No adequate EIA or its equivalent was carried out in respect of the Original Project before or after the 1977 Treaty, by either party (paragraphs 1.64-1.84).

(5) By 1989 studies indicated that the Original Project posed major environmental risks downstream and upstream (paragraphs 1.85-1.92).

(6) The state of the Original Project in 1989 did not preclude a reassessment of the 1977 Treaty (paragraphs 1.93-1.99).

(7) Research carried out after 1989 confirmed that the Original Project entailed major risks and that significant environmental damage was likely to arise upstream and downstream (paragraphs 1.100-1.140); such damage could not have been prevented or remedied by any of the "mitigation measures" that were proposed (paragraphs 1.141-1.144).

(8) In this context, Hungary's conduct in suspending construction, showing a willingness to negotiate in good faith to reach a mutually acceptable agreement was, in the circumstances, reasonable and justified (paragraphs 1.145-1.148).

CHAPTER 2

VARIANT C

2.01. The second major aspect of the dispute presented to the Court relates to "the provisional solution [otherwise Variant C]". The term "Variant C" will be used throughout this Chapter: it has the same meaning as earlier terms such as "the provisional solution", or "the provisional technical solution".

2.02. The parties are in sharp disagreement as to most issues relating to Variant C: when it was thought of, when it was planned and initially implemented, what its impacts were and are, whether it can be seen as merely part of the Original Project or a new and different project, and whether and how its impacts can best be mitigated, in the short as well as the longer term. This Chapter reviews these issues in the light of earlier pleadings and of the scientific and historical material now available. The conclusions of this Chapter provide a basis for determining the legality of Variant C, as required by Article 2(1)(b) of the Special Agreement. This crucial issue will be discussed in Chapter 3.[1]

2.03. This Chapter accordingly discusses the following issues:

(1) Earlier intimations of a "provisional technical solution" identical in substance to Variant C (both before and after 1977) (**Section A,** The Prehistory of Variant C, paragraphs 2.04-2.17);

(2) The timing of the various decisions actually taken with respect to Variant C (**Section B,** The Timing and Implementation of Variant C (1989-1992), paragraphs 2.18-2.43);

(3) The actual and threatened impacts of Variant C, and in particular whether those impacts are properly described as "substantial" (**Section C,** The Impacts of Variant C, paragraphs 2.44-2.81);

(4) Whether Variant C is in fact either "basically identical" to the Original Project or "provisional" in character (**Section D,** Variant C and the Original Project, paragraphs 2.82-2.93);

(5) The mitigation of damage arising from Variant C, and in particular the issue of compliance by the parties with Article 4 of the Special Agreement (**Section E,** Mitigation of Damage and the 1995

---

[1] See below, paragraphs 3.41-3.68.

Agreement (The Issue of a Temporary Water Management Regime), paragraphs 2.94-2.105).

Paragraph 2.106 summarises the conclusions reached in this Chapter.

SECTION A. THE PREHISTORY OF VARIANT C

2.04. Slovakia claims that Variant C is nothing more than the logical and legitimate consequence of Hungarian conduct after 1989, and that the initial decision to proceed with Variant C was only reluctantly and gradually taken in the second half of 1991.[2] This view does not correspond either with the facts of this dispute or with the political history of the region. This Section reviews that history, as a background to considering the actual dispute which arose in 1989.

(1) THE POST WORLD WAR I SETTLEMENT

2.05. For the better part of this century, Czechoslovakia has sought greater access to the right bank of the Danube. This policy, based on a claimed historical right to a greater national territory,[3] had its origins in the creation of the Czechoslovak State in 1918. It was first acknowledged on the international level by an agreement concluded in 1918 between the Government of the French Republic and the Czech National Council,[4] and in military and diplomatic correspondence of the period.[5]

2.06. The complex negotiations on the disposition of territory at the end of World War I resulted in a limited territorial concession in the region of Bratislava, confirmed by Article 27 of the 1920 Peace Treaty.[6] Article 27 referred to "a point" on the right bank, and it was a mere

---

2 SM, para 4.73.

3 Implicitly echoed in SM, paras 16-17.

4 Accord entre le gouvernement de la République française et le Conseil National Tchéco-Slovaque concernant le Statut de la Nation Tchéco-Slovaque en France, Paris, 28 September 1918; HR, Annexes, vol 3, annex 25.

5 E.g., Le Général Franchet d'Esperey, Commandant en Chef des Armées Alliées d'Orient au Général Henrys, Commandant de l'Armée Française d'Orient (Salonique, 13 décember 1918); HR, Annexes, vol 3, annex 26.

6 Art 27: "The frontiers of Hungary [with Czechoslovakia] shall be fixed as follows... the principal channel of navigation of the Danube upstream; thence westwards to a point to be chosen on the ground about 1 kilometre west of Antonienhof (east of Kittsee), this point being common to the three frontiers of Austria, Hungary and Czecho-slovakia..." HM, Annexes, vol 3, annex 1.

bridge-head. Nonetheless the consequence was that the Danube became simultaneously a successive and a contiguous watercourse between Czechoslovakia and Hungary.[7]

2.07. Another result of Czechoslovak endeavours was an unusual provision of the 1920 Peace Treaty, Article 290:

> "Au cas où l'État tchéco-slovaque, l'État serbe-croate-slovène ou la Roumanie entreprendraient, après autorisation ou sur mandat de la Commission internationale des travaux d'aménagement, d'amélioration, de barrage ou autres sur une section du réseau fluvial formant frontière, ces États jouiraient sur la rive opposée, ainsi que sur la partie du lit située hors de leur territoire, de toutes les facilités nécessaires pour procéder aux études, à l'exécution et à l'entretien de ces travaux."

2.08. Article 290 derogated from the principle of equality as between co-riparian States. It implied the possibility of unilateral uses of the Danube at Hungary's expense, albeit only with the authorisation of an international commission. It was a manifestation of the general approach of the post-World War I peace treaties, in which many concessions were extracted from the defeated Central Powers.

(2) THE POST WORLD WAR II SETTLEMENT

2.09. Continuity can be observed between early Czechoslovak efforts to consolidate and expand its control over this sector of the Danube and those in the aftermath of the Second World War. In a note of 31 May 1945 addressed to the American chargé d'affaires in Prague, Acting Minister of Foreign Affairs Clementis asserted a broad claim for a "rectification of frontiers" with neighbouring States on the basis of "ethnological, historical, geographical, economic, transport and other motives". [8]

2.10. These ambitions were spelt out in the course of deliberations for a peace treaty with Hungary in 1946. In comments on a draft of the treaty, Czechoslovakia argued for its bridge-head on the right bank to be extended geographically to allow for the enlargement of the harbour at Bratislava and for the possible development of a hydroelectric power

---

7 See *Plate 1a*.

8 Letter of V Clementis, Acting Minister for Foreign Affairs, to the American Chargé in Czechoslovakia (1945/IV), *US For Rels* Diplomatic Papers.

plant under exclusive Czechoslovak control.[9] In fact, the borders were adjusted in the Peace Treaty in 1947.[10] This incorporated in Czechoslovakia a section of the right side of the Danube, 11 km in length, previously part of Hungary.[11]

2.11. But this territorial arrangement, intended for the greater security of the city of Bratislava, did not imply any acceptance by the parties to the 1947 Peace Treaty of a right of unilateral Czechoslovak action, not even to the extent stipulated in Article 290 of the Peace Treaty of 1920. No equivalent to Article 290 was included in the 1947 Treaty, and the normal position as between riparian States, under which projects by one significantly affecting the flow of the river require the consent of the other, was expressly recognised in the series of bilateral treaties between Hungary and Czechoslovakia after 1947 – most notably, for present purposes, in Article 3(1a) of the Boundary Waters Agreement of 1976.[12]

(3) UNILATERAL CZECHOSLOVAK ASPIRATIONS

2.12. The clear legal position notwithstanding, unilateral Czechoslovak aspirations lived on. In 1952, at the first post-war intergovernmental negotiations between the Parties concerning the development of the common stretch of the Danube, the Czechoslovak delegation announced its intention to achieve unilateral control over hydroelectric potential through the construction of a system of barrages from Bratislava to Chľaba.[13]

2.13. The plan was elaborated in considerable detail: a weir was to be constructed at rkm 1864.5 in Czechoslovak territory, with a diversion channel on the left bank stretching to Palkovičovo, with two upstream barrages at Šamorin and Gabčíkovo and two downstream at Komárno and Chľaba. While stressing the need for understanding and friendship between the two countries and the need to contribute to the success of the socialist system, the Czechoslovak Party nonetheless made clear that its

---

9 Propositions et observations du Gouvernement Tchéco-slovaque concernant le Traité de la Paix avec la Hongrie, p 95. La tête de pont de Bratislava, Annexe no 2, p 118; HR, Annexes, vol 3, annex 28. See also British Foreign Office's Notes on Propositions et observations du Gouvernement Tchéco-slovaque concernant le Traité de la Paix avec la Hongrie, p 25; HR, Annexes, vol 3, annex 29.

10 HM, Annexes, vol 3, annex 2.

11 See *Plate 1B*.

12 HM, Annexes, vol 3, annex 19.

13 HR, Annexes, vol 3, annex 30.

Plate 1a International Boundaries according to the Trianon Treaty (1921)

Excerpt of General map of Hungary, edition of the Hungarian Royal Ordnance Survey, 1930, original scale: 1:750,000

Plate 1b International Boundaries according to the Paris Treaty (1947) showing the Cessation of the three Villages

Excerpt of the Military Map Series, Section "Wien and Brünn",
edition of the Cartographical Institute of the Army, 1949, original scale 1:500,000

plans for the border section of the Danube would be carried out if necessary without consultation with the Hungarian Party.[14]

2.14. In the course of the protracted negotiations to develop the Gabčíkovo-Nagymaros Barrage System, the threat of unilateral action was periodically repeated to bolster the Czechoslovak negotiating position. In 1955, the Czechoslovak Party threatened unilateral action to defeat a Hungarian proposal that the border be adjusted along the diversion canal.[15] Later that year, after consulting Soviet engineers, it presented a detailed proposal to divert the Danube at Čilistov, near Šamorin, offering in exchange vague guarantees of sufficient discharge to the main channel of the Danube and an unspecified portion of the electricity generated.[16] Similar threats were made in 1958.[17]

(4) THREATS OF UNILATERAL DIVERSION AFTER THE CONCLUSION OF THE 1977 TREATY

2.15. Even after 1977, the Czechoslovak Party relied upon the threat of unilateral action as a tool in the negotiations over the implementation of the Treaty. For example, when talks on the division of construction responsibilities foundered in late 1982, the Czechoslovak Plenipotentiary stressed that, failing a satisfactory agreement, it was prepared to proceed unilaterally with the construction of a power plant at Hamuliakovo on Slovak territory.[18] In early 1983 the Czechoslovak Party revealed that it had commissioned technical plans for two possible unilateral alternatives from an engineering institute.[19]

2.16. The same pattern recurred in 1989. Almost as soon as difficulties arose with the Project, in the light of economic and political changes in the region and of new information about the environmental risks of the Project, Czechoslovakia threatened unilateral action.[20]

---

14 HR, Annexes, vol 3, annex 30.

15 HR, Annexes, vol 3, annex 31.

16 HR, Annexes, vol 3, annex 32.

17 HR, Annexes, vol 3, annex 36.

18 Report of P Havas on the Government Plenipotentiaries' Negotiations, 27-29 October and 2-3 November 1982; HM, Annexes, vol 4, annex 160. This is now recognised by Slovakia: SC-M, para 4.15.

19 Memorandum from Mr Péter Havas, Hungarian Government Plenipotentiary, to Mr József Marjai, Hungarian Deputy Prime Minister; HM, Annexes, vol 4, annex 161.

20 HM, vol 4, annexes 21, 22, 23, 25, and 27; SM, vol 4, annexes 70 and 134; HC-M, Annexes, vol 3, annexes 45, 47, and 80

(5) CONCLUSION

2.17. Perhaps the most compelling evidence of the continuity of Czechoslovak ambitions to gain unilateral control of this sector of the Danube is that the option ultimately realised as "Variant C" incorporates all the essential elements of the plan set forth unilaterally at the first intergovernmental negotiations in 1952. In Variant C Slovakia seized exclusive control over river management by the diversion of the Danube into a left-side bypass canal, allowing for the unilateral exploitation of hydroelectric potential in priority over all other potential uses and values.

SECTION B. THE TIMING AND IMPLEMENTATION OF VARIANT C (1989-1992)

2.18. The two parties are in clear disagreement about the timetable for the implementation (design, planning and construction) of Variant C in the period after 1989. Slovakia repeatedly asserts that the planning and construction of Variant C took only 15 months, i.e., from the "approval of initial financing and planning" on 25 July 1991[21] to 24 October 1992 with the "damming of the Danube".[22] Construction itself supposedly only took eleven months from November 1991.[23] According to Slovakia, as late as June 1991 even "the initial approval of financing and logistical planning had not yet been given".[24] Approval apparently came only with the Czechoslovak Government's Resolution 484 of 25 July 1991, which purported to approve "going ahead with the 'investment and supply preparation' for putting the Gabčíkovo section into operation under the provisional solution".[25] Even then Slovakia claims Resolution 484 did not constitute a decision to implement Variant C: "what was approved was only initial financing and planning for Variant 'C': no construction work had been authorized".[26]

2.19. Slovakia thus asserts that the construction of Variant C was decided at a rather late stage of the dispute, in response to "intransigent" Hungarian behaviour. Whether or not it is *possible* that such a large-

---

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

22 SC-M, para 6.18.

23 SC-M, para 5.79. See below, paragraphs 2.21-2.30, 2.37-2.41.

24 SC-M, para 6.10, note 16.

25 SC-M, para 5.80, note 132.

26 SC-M, para 5.80. See also SC-M paras 5.82 and 6.03 ("[t]he decision to implement Variant 'C' had not yet been taken, and the limited acts that had been taken were obviously reversible").

scale operation (said to cost more than CSK 2.5 billion[27]) could have been planned and executed in such a short time, Slovakia's claims are incompatible with the evidence.[28]

2.20. As has been seen, Variant C was consistent with long-standing Czechoslovak designs on the potential offered by the Danube, including the possibility of unilateral action.[29] Slovakia now confirms – with a degree of awkwardness – that "it is *conceivable* that the possibility of unilateral completion of the Project was mentioned" during the October and November 1982 negotiations between the Plenipotentiaries.[30] In fact the "alternative solution" had been under consideration for a long time. From the evidence a picture emerges of the real time-frame in which design, planning and construction and decisions were undertaken, and implementation assured.

(1) THE TIMETABLE FOR IMPLEMENTATION: THE EVIDENCE

2.21. Although it is difficult to identify the precise date when detailed planning and construction commenced, there are many indications of a much earlier date than July 1991, the date relied on by Slovakia. Amongst other indications are the following:

* As early as August 1989 Czechoslovakia began to plan for Variant C, preparing design work when it first threatened unilateral steps "that will ensure the operation of the Gabčíkovo Barrage" in August 1989.[31] On 1 September 1989 J Obložinský (Deputy Director of the Water Conservancy Project Enterprise, Bratislava, the company responsible for construction) confirmed that the "technical alternative" is "at the planning and design stage".[32]

---

27 SM, para 9.37. This is equivalent to approximately US$ 76.5 million.

28 HC-M, para 2.96.

29 HM, para 3.44. See above, paragraphs 2.04-2.17.

30 SC-M, para 4.15 (emphasis added). Hungary has never claimed that it was "entitled to take unilateral actions starting in 1989 because Czechoslovakia had been planning to adopt variant 'C' all along, even as early as 1982" (but see SC-M, para 4.17) or that "the decision to proceed with variant 'C' had been taken almost ten years earlier" (in 1982) (but see SC-M, para 6.05).

31 HM, para 3.88; HM, Annexes, vol 4, annex 21; SM, para 7.07.

32 *Rudé Právo*, Bratislava, 1 September 1989, as cited in British Broadcasting Corporation, Summary of World Broadcasts, EE/W0095 A/1, 21 September 1989; HC-M, Annexes, vol 3, annex 79.

TIMING AND IMPLEMENTATION OF VARIANT C: A CHRONOLOGY

1989-1991

1 HM, para 3.88; HM, Annexes, vol 4, annex 21.
2 HM, Annexes, vol 4, annex 22.
3 HM, para 3.88; HM, Annexes, vol 4, annex 23.
4 HC-M, para 2.96; HC-M, Annexes, vol 3, annex 79.
5 HM, paras 3.90-3.91; HM, Annexes, vol 4, annex 25.
6 HC-M, para 2.93; HM, Annexes, vol 4, annex 25.
7 HM, para 3.96.
8 HM, para 3.97.
9 HM, paras 3.98-3.99; HC-M, para 2.43; HC-M, Annexes, vol 3, annex 47.
10 HR, Annexes, vol 3, annex 60.
11 HC-M, para 2.95; HC-M, Annexes, vol 3, annex 83.
12 HR, para 2.22.; HR, Annexes, vol 3, annex 61.
13 HC-M, para 2.96; HC-M, Annexes, vol 3, annex 93.
14 HR, Annexes, vol 3, annex 62.
15 HM, paras 3.123-3.124; HC-M, 2.99; HM, Annexes, vol 4, annex 164.
16 HC-M, Annexes, vol 3, annex 50; HR, Annexes, vol 3, annex 70.
17 HR, Annexes, vol 3, annexes 66, 67, and 68.
18 HR, Annexes, vol 3, annex 70; HC-M, para 2.96; HC-M, Annexes, vol 3, annex 87.
19 HM, para 3.122; HM, Annexes, vol 4, annex 43.
20 HR, Annexes, vol 3, annex 71.
21 HR, Annexes, vol 3, annex 72.
22 HM, paras 3.122 and 9.07; HM, Annexes, vol 4, annex 168.
23 HC-M, para 2.96; HC-M, Annexes, vol 3, annex 89.
24 HC-M, para 2.96; HC-M, Annexes, vol 3, annex 90.
25 HR, Annexes, vol 3, annex 81.
26 HC-M, para 2.100.
27 HM, para 5.135; SC-M annex 43.
28 HR, Annexes, vol 3, annex 77.
29 HM, Annexes, vol 4, annex 165.
30 HM, paras 3.134-3.137.
31 HM, Annexes, vol 4, annex 165.
32 HM, para 3.138; HM, Annexes, vol 4, annex 54.
33 SC-M para 5.80, note 132; SM, Annex 92.
34 HR, Annexes, vol 3, annex 79.
35 HM, para 9.07.
36 HM, paras 3.140 and 9.07; HM, Annexes, vol 4, annex 57.
37 HM, para 3.139; HM, Annexes, vol 4, annexes 55 and 56.
38 HM, para 3.141; HM, Annexes, vol 4, annex 58.
39 SC-M, para 5.97.
40 HR, Annexes, vol 3, annex 90.
41 HM, para 3.150; HM, Annexes, vol 4, annex 73.

HUNGARY	Joint/Independent	CZECHOSLOVAKIA
	1989	
	21-22 August: Ministerial Meeting	Czechoslovakia threatens unilateral steps if Hungary does not continue preparations for diversion[1]
	21-23 August: Meeting of Joint Committee of Experts	Czechoslovak experts confirm that planners are already studying technical alternatives to non-utilisation of the GNBS[2]
		31 August: Prime Minister Adamec threatens temporary unilateral action if Hungary refuses to comply with Treaty, and demands compensation[3]
		1 September: J Obložinský confirms that "technical alternative" is "at the planning and design stage"[4]
Hungary expresses disappointment at lack of response to its proposals and protests threatened unilateral steps, requesting detailed information	**9 September**: Deputy Prime Ministerial Meeting[5]	Czechoslovakia confirms its intention to proceed unilaterally if Hungary refuses to follow original plan, and details a proposed scheme corresponding to Variant C, while reiterating demands for compensation[6]
Prime Minister Németh proposes the abandonment of Nagymaros and the putting into operation the Gabčíkovo sector only; in the absence of such an agreement, he proposes an overall suspension of the Project until environmental requirements can be ensured	**11 October**: Prime Ministerial Meeting[7]	Prime Minister Adamec reiterates Czechoslovakia's intention to initiate a "substitute technical solution"[8]
		30 October: *Note Verbale* rejects amendment of Treaty and repeats threats of a "provisional, substitute project" if the Parties are not able to conclude a convention on environmental guarantees within a short period of time[9]
		2 November: In press interview, J Obložinský provides design details of "provisional solution"[10]
		13 November: Czechoslovak press reports announce the marking out of a new right-bank dam on Czechoslovak territory in response to Hungary's suspension of construction at Dunakiliti[11]
	1990	
		21 January: Viktor Voytek, former employee of Hydrostav, confirms that unilateral construction of Variant C is an accepted fact and that preparation works are underway[12]

25 May: Slovak Ministers fail to agree to scale down construction on unilateral technical solution in accordance with 25 April directive; work continues unabated[13]

21 August: Prime Minister Mečiar states that Czechoslovakia will seek to ensure timely completion of the construction[14]

5 September: Meeting of Environment Ministers[15] → Czechoslovak delegation hands over a preliminary list of seven technical alternatives, including Variant C

14 September: Slovak authorities form specialist committees to evaluate options for unilateral action, among them Variant C[16]

December: design details of Variant C are completed and approved by Slovak Government authorities, who determine that the start of limited operation is possible by end of 1992; Slovak Water Management Ministry requests increased funding for work from 1990 budget[17]

1991

17 January: Slovak Government approves plans for Variant C and gives instructions for implementation[18]

13-14 February: Meeting of experts of the Hungarian and Slovak Academies of Sciences[19] → The Slovak delegation informs the Hungarian delegation of the approval of Variant C, and provides limited technical details

20 February: Residents of Žitný Ostrov petition Slovak Government to stop construction at Gabčíkovo and preparatory works on Variant C[20]

27 March: Chairman of Slovak National Council confirms 2 April start date for "realisation" of Variant C[21]

29 March: Slovak State Water Management Construction Company submits plans for Variant C to parliamentary committee for approval under Slovak environmental law[22]

2 April: Press reports announce commencement of construction on Variant C[23]

5 April: Slovak Vice Premier Čarnogursky denies that any work on Variant C has begun[24]

9 April: Bratislava Water Engineering Company applies for license for the "construction of the water conservation project... according to the temporary solution alternative..."[25]

Hungary requests detailed description of the structure of Variant C

17- 21 June: Meeting of the Joint Operational Group[26]

Czechoslovak delegate responds that he is not empowered to provide information

25 June: Slovak Environmental Commission issues "19 Conditions" for the environmentally acceptable operation of Variant C[27]

10 July: Necessary water use permits and operating licenses for Variant C granted by this date[28]

Hungarian delegation objects to threatened unilateral action as both a violation of Hungarian territorial integrity and the terms of 1977 Treaty, and proposes establishing a bilateral committee to assess environmental impacts, accompanied by a suspension of construction[29]

15 July: Second Intergovernmental Meeting - no agreement reached[30]

Czechoslovak delegation asserts that the Original Project's impacts, as well as those of the proposed unilateral alternatives, are already sufficiently understood, and can be adequately remedied by additional technical measures; it proposes a trilateral expert committee involving the EC to assist in solving problems arising from the operation of Gabčíkovo, and repeats threats of unilateral diversion if Hungary refuses to agree[31]

24 July: In a letter to Slovak Prime Minister Čarnogurský, Minister Mádl protests the commencement of construction on Variant C[32]

25 July: Slovak Government passes Resolution 484, purporting to approve only "initial financing and planning" of Variant C[33]

28 July: Residents of Žitný Ostrov petition Slovak Government to cease all work on provisional option[34]

29 July: Czechoslovak construction company begins pumping of water from the Danube into the power canal[35]

30 July: Hungary protests the unilateral filling of the power canal[36]

30 July: Slovak Prime Minister gives first official notification of the decision of Federal and Slovak governments to proceed unilaterally with the construction of Variant C[37]

9 August: Hungary again protests continued construction work on Variant C, stressing that it threatens to undermine ongoing negotiations[38]

November: Slovakia claims construction begins on Variant C[39]

12 December: *Association of Towns and Villages of the Žitný Ostrov* and *Eurochain* appeal directly to Czechoslovak Federal Government to recognise Slovak opposition to "provisional alternative", by more than 20 demonstrations and numerous petitions[40]

12 December: Czechoslovak Government passes resolution confirming the continuation of work on Variant C[41]

For the complete listing of events during this period, see volume 4 – Chronology of Significant Events, 1988-1994

* On 30 October 1989 Czechoslovakia outlined its approach:

> "in the event the Hungarian Republic fails to meet its obligations...the Czechoslovak Party will be compelled – in order to avoid incurring further damages – to implement a provisional technical solution exclusively on the territory of the Czechoslovak Socialist Republic...based on *diverting the amount of water from the river Danube to the Gabčíkovo barrages agreed upon in the original Treaty and the project provided thereby*".[33]

* On 13 November 1989 it was reported that "the position for a new right bank dam for a new navigation channel began to be marked out".[34]

2.22. It is true that in December 1989 Czechoslovakia is said to have "*stopped design work* on the provisional solution on Slovak territory".[35] But the effects of the stoppage are far from clear, since in January 1990, it was reported that the unilateral construction of the plant was being taken for granted in Czechoslovakia, and that the supplementary plan had been prepared and preparatory works commenced on a structure apparently identical in all respects to Variant C.[36] In 1990, research work started on the effects of the construction of Variant C (and was *completed* in July 1991) "within the framework of measures accepted by the Ministry of Forestry and Water Management of Slovakia".[37] And there are other indications of significant activity in 1990:

* On 20 August 1990 Slovak Prime Minister Mečiar stated that Czechoslovakia will try to ensure timely completion of the construction on the basis of a "substitute solution".[38]

---

33 *Pravda*, 31 October 1989; HR, Annexes, annex 59 (emphasis added). See also HC-M, Annexes, vol 3, annex 47.

34 British Broadcasting Corporation, Summary of World Broadcasts, EE/W0105 A/1, 30 November 1989, referring to Prague 1730 GMT, 13 November 1989; HC-M, Annexes, vol 3, annex 83. The report is entitled "Beginning of Czechoslovak Work on New Shipping Channel on Danube near Gabcikovo".

35 SM, para 7.07 (emphasis added). See also ČTK, 15 December 1989, as reported in British Broadcasting Corporation, Summary of World Broadcasts, EE/W0109 A/1, 4 January 1990; HC-M, Annexes vol 3, annex 84.

36 See Interview with Viktor Voytek, former employee of HYDROSTAV, *Svet Socializmu* / 2, January 1990, pp 16-18; HR, Annexes, vol 3, annex 61.

37 HR, Annexes, vol 3, annex 84.

38 "A Substitute Solution for Gabčikovo", *Pravda*, 21 August 1990; HR, Annexes, vol 3, annex 62.

* On 5 September 1990 "the various alternatives being studied [including Variant C] were presented to Hungary", albeit only in outline.[39]

* On 29 December 1990 the Slovak Government was said to have "accept[ed] the potential alternatives of utilisation of the Gabčíkovo Hydroelectric Power Plant"; it undertook to organise assessment and prepare project documentation for Variant C "in such a way that summary proceedings leading to an earlier start of construction work might become possible", and required the Finance Minister to "raise funds for the preparation of a project documentation to make possible the starting of work on and the subsequent realisation of option 'C'".[40]

Also in December the Ministry of Forestry and Water Management of the Slovak Republic expressed in 1990 "the need for a 163.4 million Kčs higher subsidy from the Federal budget" (i.e., some 7% of the alleged total cost of Variant C).[41] The Slovak Government determined at this time that "the realisation of Variant 'C' makes the limited operation of the Gabčíkovo plant possible in only 2 years (with the development along the state boundary on the Czechoslovak side)". This meant by the end of 1992, as in fact occurred.[42]

2.23. On 17 January 1991, it is reported that the Slovak Government had "approved *further* progress in the construction" of the alternative solution.[43] Thereafter events moved swiftly towards the reported commencement of construction in April 1991:

* On 5 February 1991 the Head of the Slovak Committee of Ecology and Environment complained about the "proposition for the acceptance of Option 'C' as the best solution" and that "measures are being taken to make funds available for the elaboration of the plan documentation and for the realisation of work items related to

---

39 HM, para 3.123. This has been confirmed by Slovakia; SC-M, para 5.68.

40 See Ministry of Forestry and Water Management of the Slovak Republic, Information Document for the Cabinet Meeting of the Government of the Slovak Republic, 29 December 1990; HR, Annexes, vol 3, annex 68.

41 HR, Annexes, vol 3, annex 66.

42 International Law Analysis of the Possibility of Implementing the Gabčíkovo Hydropower Plant as a Czechoslovak National Investment, 29 October 1990; HR, Annexes, vol 3, annex 64.

43 British Broadcasting Corporation, Summary of World Broadcasts, EE/0989 B/5, 6 February 1991, referring to Prague home service 1500 gmt, 6 February 1991; HC-M, Annexes vol 3, annex 87 (emphasis added). The report is entitled "Slovak Government approves completion of Gabcikovo-Nagymaros".

this option", on the grounds that no adequate consideration had been given to the environmental arguments.[44]

* On 14 February 1991 Hungarian authorities learned that the Slovak Government had already approved the plans for Variant C.[45]

* On 27 March 1991 the Chairman of the Environmental and Natural Protection Committee of the Slovak National Council noted that "the realisation of variant 'C' shall commence on 2 April 1991, and it will do so without the approved planning documentation and contrary to the opinions of the majority of the members of the specialist committees and their leaders".[46]

* On 29 March 1991 Hungarian authorities discovered that the State Water Management Construction Company of Bratislava had submitted a plan to the Environment Committee of the Slovak Parliament on the "Putting into operation of the Gabčíkovo Plant as a provisional solution on the territory of CSFR" requesting the Committee to approve the plan.[47]

* On 2 April 1991 Hungarian Radio reported that "in Slovakia the construction of the so-called 'version C' [of the Gabčíkovo] power station has begun...";[48] this was confirmed in *Pravda*.[49]

* On 9 April 1991 the Bratislava Water Engineering Company applied for a license for the "construction of the water conservation project...according to the temporary solution alternative (the 'C'), the commencement of the operation of the Gabčíkovo Hydroelectric Power Station in the territory of the [Czech and Slovak Federal Republic]".[50]

---

44 HR, Annexes, vol 3, annex 70.

45 HM, para 3.122.

46 Letter dated 27 March 1991 from Mikuláš Huba, Chairman of the Environmental and Natural Protection Committee, to František Mikloško, President of the Slovak National Council; HR, Annexes, vol 3, annex 72.

47 HM, para 3.122.

48 Budapest Home Service, 1600 gmt, 2 April 1991, cited in British Broadcasting Corporation, Summary of World Broadcasts, EE/1037 A2/2, 4 April 1991; HC-M, Annexes, vol 3, annex 89.

49 *Pravda*, 2 April 1991 ("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'"); HR, Annexes, vol 3, annex 74.

50 Letter of Robert Wendl, Leader of the Department, County Environmental Office, Bratislava Region, State Water Conservancy and Water Protection Department, 30 October 1991; HR, Annexes, vol 3, annex 81.

2.24. Each of these acts of implementation occurred *before* 25 July 1991, when Slovakia claims *initial* approval of financing and logistical planning of Variant C was given. Any such approval had the effect of rubber-stamping a detailed process of implementation which was well under way. When Resolution 484 was adopted, the decision to go ahead with Variant C had already been made, at least so far as the Slovak authorities were concerned.

2.25. These and the other developments identified in the Hungarian Memorial[51] and Counter-Memorial[52] show that the planning and construction of Variant C was by no means a response to the April 1991 Resolution of the Hungarian Parliament. On the contrary, the decision to implement Variant C, based on detailed planning, pre-dated both that Resolution and the negotiations held in April and July 1991.

2.26. Slovakia seeks to argue that Hungary's termination of the 1977 Treaty cannot be considered as one of the consequences of the construction of Variant C, since "Variant C only began to affect the flow of the Danube five months after Hungary's termination notice".[53] This implies that the construction of a new 10 kilometre long bypass canal and other large-scale installations at Čunovo[54] signified nothing until the diversion was actually accomplished. Everything could have been stopped, the whole construction could have been abandoned if Hungary returned to the Original Project. But the diversion of the river was merely the *final* step. Czechoslovakia had long been determined to carry out the implementation of Variant C, leaving the ecological consequences to be resolved – or not resolved – after the event.

2.27. Responding to Hungary's complaint that it was not informed about the construction plans and technical details of Variant C, Slovakia asserts that proper information had always been provided.[55] The only evidence relied on is a sentence from an *Aide Memoire* of a meeting of Hungarian and Slovak scientists on 13-14 February 1991, according to which –

---

51 HM, paras 3.122-3.124.

52 HC-M, paras 2.93-2.97.

53 SC-M, title of Section I, chap VI on p 143 and paras 6.05-6.06.

54 See below, paragraph 2.85.

55 SC-M, paras 5.68, 6.07-6.14. As far as the last days before the diversion of the river is concerned, according to Slovakia "the details were known to the whole world – but not to Hungary"; SC-M, para 6.10.

> "at the end of the meeting the delegation [of the Slovak Academy of Sciences] informed the delegation [of the Hungarian Academy of Sciences] of the technical details and ecological aspects of C variant, *approved by the Slovak Government* and on the ecologically valued D variant".[56]

But the "technical details" of Variant C presented at this meeting were wholly insufficient.[57] And Slovakia omits to mention that the meeting took place five months *before* the 25 July 1991 governmental decision which, on its view, marked the *first* decision on the planning and implementation of Variant C. By contrast, the *Aide Memoire* of 14 February 1991 refers to the respective decision *in the past tense*. By its own account Slovakia confirms the early start to Variant C.

(2) PREPARATORY WORK, STUDIES, AND FINANCE

2.28. Preparatory work and studies had thus been approved and more or less completed by December 1990, well before the July 1991 decision purporting to approve initial financing and logistical planning. It is not altogether clear what Slovakia means by "financing" and "logistical planning" in referring to Resolution 484 of July 1991. What *is* clear is that the costs of these studies and related activities must have been provided for at least in part out of the 1990 Project budget,[58] and that decisions on financing and logistical planning were taken far earlier than July 1991.

2.29. The extent of preparatory work and studies completed by the end of 1990 is confirmed by Slovak documents dating from December 1990. These show that detailed plans were drawn up in the autumn of 1990 and approved by the Slovak Government in December 1990 and January 1991, and that a decision was taken to proceed with Variant C amongst the various options no later than January 1991.[59] They also confirm that in December 1990 the Slovak Ministry of Finance was asked to ensure the availability of sufficient financial resources for further work on the realisation of Variant C.[60] By that date also, Slovakia's legal strategy had been worked out.[61] By January 1991 the Government of the Slovak

---

56 HM, Annexes, vol 4, annex 43 (emphasis added).

57 See HC-M, paras 2.98-2.100 for a full account.

58 HR, Annexes, vol 3, annex 66.

59 See above, paragraphs 2.22-2.23; HR, Annexes, vol 3, annexes 68 and 87.

60 See above, paragraph 2.22; HR, Annexes, vol 3, annex 68.

61 See below, paragraphs 2.31-2.32; HR, Annexes, vol 3, annex 68.

Republic had "consented [to] the preparation of the temporary solution of Gabčíkovo *on the Czecho-Slovak territory, not requiring cooperation of Hungarian side*".[62]

2.30. To summarise, by December 1990 or at the latest January 1991, the plans for Variant C already envisaged in August 1989 were complete and had been approved, and relevant financial decisions had been taken. Apart from a brief (and apparently limited) interregnum in early 1990 the record from August 1989 to November 1992 is one of unflinching progress with Variant C, based upon advice relating to its legal and economic aspects.

(3) LEGAL ANALYSIS IN PREPARATION FOR VARIANT C

2.31. A legal analysis prepared for the Slovak Government in December 1990 provides a revealing glimpse into the origins of the strategy which would, in substance, be relied upon to justify Variant C. Under the rubric of the "Realisation of the Gabčíkovo Hydroelectric Power Plant as a National Investment Project", this document extolled the virtues of Variant C, among them the possibility of the permanent retention of Variant C structures, even if Hungary should subsequently agree to the completion of the Original Project:

> "Variant 'C'...makes it possible for the Slovak partner to carry out its obligations contained in the Treaty at any time, in the event that the causes for suspension of implementation of the Treaty should cease to operate (namely, if there would be an indication of interest on the part of the Republic of Hungary in the construction of the GNBS according to the original plans)."[63]

Another benefit is the fact that Variant C renders Gabčíkovo "a purely national investment", one operating for the sole benefit of

---

62 Standpoint of the CSFR on the finishing of the Common Gabčíkovo-Nagymaros Project, 13 April 1992; HR, Annexes, vol 3, annex 88 (emphasis added); see also Slovak newspaper *Narodna Obroda*, 18 January 1991, reporting that "certain groups of experts...in conjunction with Bratislava Hydroconsult, submitted a proposal for the further *construction* of the Gabčíkovo-Nagymaros power plant. The alternative is...option 'C' which is the creation of the reservoir by a dam on CSFR territory" and that "[t]he Government has accepted this proposal" (emphasis added); HR, Annexes, vol 3, annex 69.

63 HR, Annexes, vol 3, annex 64.

Czechoslovakia.[64] But the document stressed that Variant C should be "presented" throughout as provisional.[65]

2.32. Public statements made by Slovak officials soon after this document was circulated suggest that it had an immediate influence on policy. On 18 January 1991 the Minister of Forestry and Water Management stressed its themes in a press conference called to announce government approval of Variant C.[66] Mr Oberhauser, an acknowledged champion of Variant C, stressed that "what we have here is a *provisional* situation and the Czech and Slovak side will *continue to hold negotiations* with the Republic of Hungary in accordance with the original agreement".[67] He added that in the event of the implementation of Variant C, "we would lodge no claim against our Hungarian partners".

(4) PREPARATORY ECONOMIC ANALYSIS OF VARIANT C

2.33. The economic aspects of Variant C were also considered. A document prepared for the Slovak Government in June 1991 explained the project's financial viability and subsequent decisions taken in relation to the volume of water to be allowed into the main riverbed.[68] Initially the analysis identified losses in respect of forestry, agriculture, and water management (on the Slovak side) but excluded any assessment of general environmental damage or losses on the Hungarian side.[69]

2.34. The economic evaluation considered the financial consequences of water flows to the main riverbed at the following levels:

---

64 HR, Annexes, vol 3, annex 64.

65 HR, Annexes, vol 3, annex 64, referring to Art 72 of the Vienna Convention on the Law of Treaties. For analysis of this aspect of the document see below, paragraphs 2.90-2.93 and 3.64, 3.65.

66 Under the supervision of the Ministry of Forestry and Water Management, six specialist committees considered the proposed alternatives for unilateral action from the perspectives of international law, production, environment, water management, hydrotechnology and economics. In the end, only the conclusions of the committees of international law and economics favouring the adoption of Variant C were presented in the "synthesis" submitted by the Ministry. The disregard of the findings of other specialist committees was criticised by the Head of the Committee of Ecology and Environment who decried the Ministry's "attitude of technocracy". See HR, Annexes, vol 3, annex 70.

67 HR, Annexes, vol 3, annex 69 (emphasis added).

68 HR, Annexes, vol 3, annex 77.

69 Ibid.

- 50 m^3/s all year round;
- 350 m^3/s all year round;
- 350 m^3/s with water erosion mitigation dams in the old riverbed;
- 600 m^3/s all year round;
- 600 m^3/s outside the vegetation period and 1300 m^3/s in the vegetation period;
- 1300 m^3/s all year round.

Although the Technical Description and Economic Analysis had recommended that "the old riverbed should be supplied with *at least* 600 m^3/s water flow (during the growing season, this value leaps to 1300 m^3/s)",[70] the economic evaluation noted that at this level of flow "the profitability of the investments would fall back to a moderate average level".[71] The evaluation states that "this version must be dealt with as a limit to profitability".[72]

2.35. At a flow of 50 m^3/s the investment is described as "especially cost-efficient", while a flow of 350 m^3/s means that the investment is "still cost-efficient",[73] returning the cost of the whole project "in approximately 7-8 years" (and returning the cost of completion of Variant C in 4-5 years). With the actual flow of water into the old riverbed having averaged 353 m^3/s in 1993, 217 m^3/s in 1994, and 180 m^3/s in the first months of 1995,[74] the cost of Variant C would, if these figures are accurate, be recovered within four years, and the *total* costs (ignoring environmental costs and damages) to both Czechoslovakia and Slovakia would be recovered in less than 7 years.

2.36. A subsequent internal Slovak Government document recorded the determination to rely on Joint Contractual Plan discharge levels, no doubt for financial reasons. It set out as parameters for Variant C, *inter alia*:

> "- the Czech and Slovak Federal Republic shall insist on the validity of the [1977] International Agreement...

---

70 HR, Annexes, vol 3, annex 77, p 376 (emphasis added).

71 Ibid, p 382.

72 Ibid, p 383.

73 Ibid, p 382.

74 HR, Annexes, vol 3, annex 1.

- water flow into the Danube bed has to be secured in accordance with the amount determined in the water division rulings approved by the project included in the joint agreement."[75]

(5) OTHER INDICATIONS OF THE REAL TIMETABLE

2.37. In its Counter-Memorial Slovakia persists in its claim that construction of Variant C did not begin until November 1991,[76] and that the decision "to put the Gabčíkovo part [of the Project] into operation and to complete its construction on the territory of [Czechoslovakia]" was not made before 12 December 1991.[77] This implies that only four months were needed from approval of logistical planning on 25 July 1991 to the commencement of construction, an extraordinarily short time for such a Project. As already noted, there is evidence that Slovak construction companies were active on what was to become Variant C throughout 1990.[78]

2.38. In any event, construction of Variant C was well under way far earlier than November 1991. For example, as early as January 1990 it was publicly reported that "preparatory works have commenced";[79] that construction of "the left dam in the affluent canal" was started in July 1991;[80] and that on 3 July 1991 "ongoing work was *disrupted* at the Hrušov-Dunakiliti reservoir".[81]

2.39. The early start to implementation of Variant C is evident also from the grant of operating licenses. Relevant water laws permits had been granted or were to be granted by 10 July 1991[82] (i.e., before initial *planning* was supposed to have been authorised). Authorisation for the *use* of construction units *built* for phase one of Variant C was granted in

---

75 Government of the Slovak Republic, Document no 11/1992, Information Document, January 1992; HR, Annexes, vol 3, annex 84.

76 SC-M, para 5.79; see also SC-M, paras 5.73, 6.04, and 11.05.

77 SC-M, para 5.90; SM, Annex 102, p 287.

78 East-West Centre, Slovakia. *The Gabčíkovo Water Works*, January 1993, p 6; HC-M, Annexes, vol 3, annex 93; *Power Europe*, 27 September 1990; HC-M, Annexes, vol 3, annex 86.

79 See above, paragraph 2.22; HR, Annexes, vol 3, annex 61.

80 HR, Annexes, vol 3, annex 84.

81 HR, Annexes, vol 3, annex 84 (emphasis added).

82 Technical Description and Economic Assessment of the Temporary Commencement of Operations at the Gabčíkovo Hydroelectric Plant, June 1991; HR, Annexes, vol 3, annex 77.

October 1991 (i.e., before construction was supposed to have commenced).[83]

2.40. The early start is also confirmed by activities of local residents. On 20 February 1991 the residents of villages and towns of the Žitný Ostrov petitioned the Slovak Government to stop the construction of the Gabčíkovo-Nagymaros plant and the financing of planning and preparatory works of Variant C.[84] A further petition of 28 July 1991 from the inhabitants of Žitný Ostrov called on the Slovak Government to "[s]top the direction of the Danube from the Hrušov branch into the affluent canal" and "all work pertaining to the transitional option".[85]

2.41. As to financing, key financial decisions had been taken by late 1990.[86] In terms of money actually expended by Czechoslovakia in 1990 and 1991, the evidence shows that total annual expenditures *increased* in 1991, as compared to 1990, in relation both to water management and energy costs, particularly in construction.[87] Such expenditures are difficult to reconcile with a November 1991 start to construction. The 1990 figures were themselves substantial.

(6) SLOVAKIA'S NEED TO SHOW THAT GOVERNMENTAL APPROVAL FOR VARIANT C ONLY CAME ON 25 JULY 1991

2.42. In the face of this clear evidence Slovakia persists in its claim that the decision to implement Variant C was taken only on 25 July 1991 (and even then decisions related only to "the approval of initial financing

---

83 HR, Annexes, vol 3, annex 84.

84 Petition of the Members of the Association of the Žitný Ostrov Towns and Villages at the Meeting of Grand Mayors and Mayors in Dunaszerdahely, 20 February 1991; HR, Annexes, annex 71. See also Letter from the League of Towns and Villages in the Žitný Ostrov and other local organisations to the Committee Chairmen of assorted bodies, 18 July 1991, complaining that the Slovak Government "has provided funds for preparatory work in connection with option C, i.e., the completion of the power plant"; HR, Annexes, vol 3, annex 78.

85 Petition by the inhabitants of Žitný Ostrov in connection with the rally on 28 July 1991; HR, Annexes, vol 3, annex 79. See also the Declaration by the Association of the towns and villages of the Žitný Ostrov concerning the construction of the Gabčíkovo Hydroelectric Power Plant, 18 February 1992; HR, Annexes, vol 3, annex 85.

86 See above, paragraph 2.22; HR, Annexes, vol 3, annex 68.

87 Review of Budgetary Expenditure for the Construction and Operation of the Gabčíkovo Plant under the Temporary Solution, August 1991; HR, Annexes, vol 3, annex 84 (Attachment).

and planning"[88]) and that construction only began in November 1991.[89] Given its legal argument in this case, Slovakia is bound to take this line, for a number of reasons. *First*, any suggestion that the decision to implement Variant C had been taken before July 1991, or that the national authorities without formal approval had promoted the construction of Variant C before those dates, would undermine the argument that Czechoslovakia had negotiated with Hungary in good faith up to that time.[90] *Second*, Slovakia's approach supports its claim that Hungary's decision to terminate the 1977 Treaty "occurred long before even the *planning* of Variant 'C'".[91] And *third*, Slovakia's approach provides much-needed support for its attack on Hungary's claim that continued construction of Variant C was the main reason for terminating the 1977 Treaty.[92] To the extent that planning or construction can be shown to have commenced at any time before July 1991, Slovakia's legal strategy collapses.

(7) CONCLUSION

2.43. The evidence shows that Slovakia began planning Variant C as early as August 1989, that decisions on design, planning and finance were taken in late 1990, and that licenses were granted and construction was in fact under way by early 1991 or shortly thereafter. Variant C was being implemented whilst negotiations were being undertaken from late 1990 until July 1991. By the time Czechoslovakia adopted Resolution 484 on 25 July 1991, planning and construction of Variant C had long been a *fait accompli*. And when Hungary terminated the 1977 Treaty in May 1992 the first phase of Variant C was approaching completion.

---

88 SC-M, para 5.67.

89 SC-M, paras 5.79, 5.83.

90 SC-M, para 5.76 (at the meeting of 15 July 1991 Czechoslovakia "remained open to enter again into negotiations over the completion of the G/N Project and any alternative variants to do so" (emphasis in the original)).

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

92 HM, para 3.165; SC-M, para 5.112 (Hungary's unilateral acts were "unrelated...to the decisions and actions of Czechoslovakia as to Variant 'C' during this period up to Hungary's purported termination of the 1977 Treaty").

SECTION C. THE IMPACTS OF VARIANT C

(1) INTRODUCTION

2.44. This Section provides further information on the impacts of Variant C, including its significant adverse effects on the environment and the impacts on flood control and navigation, and responds to those sections of the Slovak Counter-Memorial which address those impacts (Chapters VII and VIII). It draws on the additional data and conclusions of the *Scientific Rebuttal* and its annexes.[93]

2.45. For the purposes of this Section the critical issue for the Court is whether Variant C has occasioned or is likely to occasion adverse effects on Hungarian territory, and if so whether these effects are significant or serious in nature. For Slovakia the impacts of Variant C are either non-existent or tolerable, at any rate less than "serious".[94] Hungary considers that Variant C has already occasioned "serious consequences" to Hungary, its territory and environment.

2.46. However, the parties agree on one key issue: if Variant C *has* caused or is likely to cause significant adverse effects on Hungarian territory it is unlawful and its operation should be halted.[95] Hungary will return to this question in Chapter 3.

(2) SLOVAKIA'S APPROACH TO THE IMPACTS OF VARIANT C[96]

2.47. Beyond denying the significant adverse effects of Variant C, Slovakia also denies that any of its impacts are more severe than those the Original Project would have produced.[97] This is not true in fact,[98]

---

93 See *Scientific Rebuttal*, HR, vol 2; HR. Annexes, vol 3, annexes 1, 2, 5 and 6.

94 SC-M, para 9.69.

95 See HM, paras 7.45-7.56; HC-M, paras 6.29-6.41; SM, paras 7.84-7.85; SC-M, paras 11.27-11.44.

96 On general issues of scientific credibility see above, Introduction, paragraphs 14-17, and see also *Scientific Rebuttal*, HR, vol 2, chap 2.

97 SC-M, para 8.05.

98 As pointed out in HM, paras 5.108-5.109; HC-M, para 3.10. In some respects Variant C is causing more damage to Hungary than the Original Project would probably have caused: in some respects it is causing less. SC-M, para 8.01, professes difficulty in understanding this rather simple point.

but even if it were, it cannot be relevant.[99] Slovakia has no "vested right" to cause substantial harm to Hungary.[100]

2.48. In addition, Slovakia claims that "insofar as severe environmental damage to the Szigetköz has been suffered by Hungary" it is not the "inevitable" result of the damming of the Danube but rather due to Hungary's "wilful intransigence" and the "direct result of a deliberate and calculated refusal to implement the water recharge which is necessary to the region".[101] The need to make the argument suggests that "severe environmental damage" is in truth being caused. But it is necessary to meet the argument in its own terms; this will be done in Section E, below.[102]

2.49. In its Memorial, Hungary referred to the 19 conditions imposed on Variant C by the Slovak Commission for the Environment: these conditions were violated in the implementation of Variant C, which was accordingly unlawful under Slovak law.[103] This is relevant under international law, since it helps to show lack of due diligence. Hungary has never suggested that the 19 Conditions were adequate; they certainly did not amount to "adequate prerequisites for the implementation of Variant 'C'".[104] They were no substitute for proper notification, consultation, and environmental impact assessment in accordance with international law. And according to those directly responsible for their implementation,[105] the operating company was in breach of those conditions at the time of the diversion and for a substantial time thereafter.[106]

---

99 See HM, para 5.109.

100 Cf above, paragraph 1.28.

101 SC-M, paras 8.05, 8.10.

102 See below, paragraphs 2.94-2.105.

103 See HM, paras 5.135-5.136; HC-M, para 6.124; and for the 19 Conditions see HM, Annexes, vol 4, annex 168, pp 404-407.

104 SC-M, para 8.45.

105 See Communiqué of the Slovak Ministry of the Environment to the 4 December 1992 Session of the Slovak Government, 4 December 1992; HC-M, Annexes, vol 3, annex 57. Slovakia denies this (SC-M, para 8.50), despite the fact that the operating company was fined under local law for the breach; HM, para 5.136.

106 The conditions were later changed to conform with Variant C, rather than Variant C conforming with the conditions. They were accordingly useless in terms of environmental protection, but useful as evidence of disregard even of Slovak environmental requirements; see HC-M, para 6.124.

(3) SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS OF VARIANT C

2.50. The unilateral diversion of the Danube occasioned by Variant C has had significant adverse effects,[107] which Slovakia has been unable to deny on the basis of independent scientific advice. Since the filing of the Counter-Memorials, further information has become available on these adverse effects: this is analysed in the appended *Scientific Rebuttal*, and outlined here.

2.51. It must be emphasised that the full effects of the unilateral diversion will only unfold over time; in the nature of things there are uncertainties about interrelations between the various affected components (surface water, groundwater, soils, etc.).[108] But it is quite clear that the unilateral diversion of the Danube has caused and is causing significant damage to Hungary. The various elements of damage will be briefly referred to.

(a) River morphology

2.52. The morphological impacts of Variant C below Dunakiliti are similar to those anticipated by the Original Project. These include erosion and transportation of large quantities of sediment; coverage of the "oversized" riverbed with woody vegetation outside the wetted perimeter; gradual degradation of the riverbed due to retention of coarse sediment in the Čunovo Reservoir, and siltation near the banks; and less frequent and shorter inundations of the side-arms accompanied by lower concentration of suspended load.[109] Some of these consequences are already being observed.[110]

2.53. Slovakia says little about the morphological impacts of Variant C, and what it does say is wrong. The third weir to be installed at the Čunovo complex will not prevent sedimentation of almost all bedload at the upstream end of the Čunovo Reservoir,[111] and the assertion that colmatation of the side branches or main river bed preventing a groundwater recharge would not occur is unsupported by the

---

107 HM, paras 5.106-5.134; HC-M, paras 3.15-3.85.

108 HC-M, paras 3.16-3.17.

109 *Scientific Rebuttal*, HR, vol 2, chap 3.1.3; HC-M, paras 3.18-3.23; *Scientific Evaluation*, HC-M, vol 2, chap 2.4.

110 *Scientific Rebuttal*, HR, vol 2, chap 3.1.3. and Molnár, 1995, HR, Annexes, vol 3, annex 2.

111 SM, paras 5.29, 5.35; *Scientific Rebuttal*, HR, vol 2, chap 3.1.3.

evidence.[112] It is inaccurate to characterise Dr Jäggi's article as supporting the view that as a result of Variant C the Danube can now develop "more naturally".[113] Dr Jäggi opposes the construction of weirs in the main channel,[114] and the discharge regime in the main Danube at Čunovo since the diversion does not correspond with his views. Hungary notes both that "Slovakia is in full agreement with the views expressed in Dr. Jaeggi's paper"[115] and that this agreement is not reflected in the discharge regimes under Slovak control.

(b) Surface water[116]

(i) Hydrology

2.54. Slovakia has nothing to say about this issue. The facts are incontrovertible, and the actual releases of water from Čunovo into the main riverbed are markedly different from the stipulated discharges for the Original Project. In 1993 the average discharge was 353 m^3/s, including floods; in 1994 the average discharge had fallen to 217 m^3/s, including an 8-day flood release; and in the first three months of 1995 the average discharges had fallen even further to 177 m^3/s.[117] Flow velocities were cut in half in the main riverbed and by even more in the lower part.[118] As a result there was an immediate drop in surface water levels and a subsequent drop of groundwater levels associated with bank failures all along the channel. While planning Variant C it was acknowledged that ecologically the Danube riverbed needed a minimum discharge of 600 m^3/s increased to 1,300 m^3/s during the growing season.[119]

(ii) Water Quality[120]

2.55. The complex issues associated with water quality were neglected in the supporting studies for the Original Project and have not yet been

---

112 SC-M, paras 7.41-7.44, 8.26; *Scientific Rebuttal*, HR, vol 2, chaps 3.1.3 and 4.5.

113 SC-M, paras 7.80, 8.03.

114 *Scientific Rebuttal*, HR, vol 2, chap 3.1.3. See also chap 7 of the *Scientific Rebuttal*. Dr. Jäggi reiterates his critique of the construction of weirs in a letter to Hungary; HR, Annexes, vol 3, annex 3.

115 SC-M, para 8.03.

116 See HC-M, paras 3.24-3.35.

117 HR, Annexes, vol 3, annex 1.

118 *Scientific Rebuttal*, HR, vol 2, chap 4.2.2.

119 HR, Annexes, vol 3, annex 77.

120 *Scientific Evaluation*, HC-M, vol 2, chap 3.3.

fully explored in relation to Variant C.[121] It is nevertheless evident that the historical trends in Danube water quality which show dramatic increases in nutrients with consequential increases in algal biomass and changes in phytoplankton populations are likely to be exacerbated by Variant C.[122] Variant C is also likely to contribute to increased degradation, with already poor bacteriological quality and increases in concentration of heavy metals in the sediment which already exceed limit values in certain places. Adverse water quality changes in the Mosoni Danube led to fish mortalities in 1993.[123]

2.56. The Slovak Counter-Memorial's reliance on an EC quotation that the Danube water is "well-suited for river bank infiltration" cannot detract from the potential adverse effects of Variant C on bank-filtered water supplies.[124] Slovakia fails to provide any supporting evidence to show that eutrophication has been extensively studied – a serious concern since, according to the OECD's eutrophication classification scheme for lakes and rivers, the Danube River at present falls in the worst category.[125] It mentions hypothesised counteracting effects of the reservoir without providing any detailed supporting analysis.[126] It wrongly accuses Hungary of taking the EC's words out of context.[127] But the EC Working Group Report of 23 November 1992 concluded that the –

> "net impact of the reservoir on the surface water quality in the downstream Danube is expected to be negative for the first couple of years and uncertain in the long term."

It added that –

> "the smaller velocities and much smaller depths in the Danube downstream...will result in significantly different (generally negatively) water quality conditions with respect to self-purification, oxygen conditions, eutrophication, etc."

---

121 *Scientific Rebuttal*, HR, vol 2, chap 4.3.

122 *Scientific Rebuttal*, HR, vol 2, chap 4.3. See also *Plate 6.5*, showing eutrophication in the Old Danube, summer 1994.

123 Ibid.

124 *Scientific Evaluation*, HC-M, vol 2, chap 3.5.

125 *Scientific Rebuttal*, HR, vol 2, chap 4.3.

126 SC-M, paras 7.34-7.35. Slovakia does not refer to any domestic investigation into the eutrophication problems, but relies on a 1985 Hungarian document which talks about the alleged aeration impact of the turbines (17 km downstream of the reservoir) as counteracting the eutrophication potential of the reservoir.

127 SC-M, para 7.36, referring to HM, para 5.44.

In the floodplain and associated areas on both sides the operation of Variant C –

> "will result in a continuation of the immediate negative impacts experienced during the past weeks".

In the longer term –

> "the change in dynamics with much smaller fluctuations may in addition influence the groundwater quality in a negative direction".[128]

2.57. In a single paragraph the Slovak Counter-Memorial makes three serious errors of understanding, referring to monitoring as though it can provide a solution to problems, using short-term observation to argue that long-term effects will not occur, and arguing that taking the main part of the flow through the bypass canal would prevent eutrophication.[129]

2.58. Slovakia is wrong to suggest that the problems of eutrophication in the side-arms produced a deterioration in groundwater quality: the primary recharge source for the Szigetköz aquifer was good quality water from the main Danube channel. Following the diversion this has been replaced by poorer quality water.[130]

(c) Sub-surface water[131]

2.59. The *Scientific Rebuttal* summarises the likely serious adverse effects of Variant C on groundwater flow and quality, both in the Szigetköz area and downstream.[132] This remains a central issue. Slovakia frequently relies on unsubstantiated assertions, provides misleading data and misrepresents groundwater processes.[133]

2.60. In relation to the character and function of the water resources, Hungary never stated that the water reserve of the Szigetköz is used for supplying Budapest.[134] Hungary only maintained that its capacity was equivalent to that required by the capital city. The Szigetköz groundwater is (or before Variant C *was*) a bank-filtered water resource, since it could

---

128 HM, Annexes, vol 5 (part II), annex 14, p 460.

129 SC-M, para 7.37.

130 SC-M, para 7.39; *Scientific Evaluation*, HC-M, vol 2, chap 3.4-3.5.

131 HC-M, paras 3.36-3.50.

132 See *Scientific Rebuttal*, HR, vol 2, chap 4.4.

133 For examples see *Scientific Rebuttal*, HR, vol 2, chap 4.4.

134 A proposition characterised as "scientifically untenable" in SC-M, para 7.46.

be tapped by using bank filtration methods in addition to conventional wells.[135]

2.61. As to the risks to groundwater Slovakia presents the fact that degradation is expected to be a long-term process as an argument that the threat is not serious, criticises Hungary for lack of certainty in its risk assessment, and asserts that "there is no evidence that the Project will have adverse impacts on groundwater quality, either immediately or in the future".[136] These claims are unsupported by the available evidence or by leading Slovak scientists.[137]

(d) Colmatation

2.62. The complex inter-relationships between surface water and groundwater are fundamental to any understanding of the impacts of Variant C.[138] It was expected that significant sediment deposition would take place in the Dunakiliti-Hrušov Reservoir, and that has now been observed for Variant C (see volume 2, *Plate 4.1*).[139] From groundwater simulation studies it appears likely that colmatation processes will now restrict groundwater recharge from reservoir infiltration.[140]

2.63. Slovakia states that colmatation "had been given careful study by the Treaty parties and by independent experts."[141] No study has been submitted by Slovakia in connection with the changed hydrological conditions of the Čunovo reservoir, which is different from the Original Project's reservoir, in size, shape and water movement. Slovakia implies that the flushing of fine sediments in the side branches is sufficient to guarantee good infiltration conditions.[142] This view is unsupported by recent Hungarian studies,[143] and the data presented by Slovakia are limited in scope both by location and time.[144] Slovakia's claim that the

---

135 *Contra* SC-M, para 7.24.

136 SC-M, para 7.29.

137 *Scientific Rebuttal*, HR, vol 2, chap 4.4, note 57.

138 *Scientific Evaluation*, HC-M, vol 2, chaps 3.4, 3.5; *Scientific Rebuttal*, HR, vol 2, chap 4.5.

139 Molnár, 1995; HR, Annexes, vol 3, annex 2.

140 *Scientific Rebuttal*, HR, vol 2, chap 4.5. See also *Scientific Evaluation*, HC-M, vol 2, chap 3.4.

141 SC-M, para 7.41.

142 SC-M, paras 7.42, 7.43.

143 *Scientific Rebuttal*, HR, vol 2, chap 7.3.2.

144 SC-M, para 7.42, note 61.

construction of weirs would not lead to colmatation[145] is not supported by observed sedimentation (see volume 2, *Plate 3.1b*) or by experience upstream in Austria.

(e) Wetland Ecology and Vegetation

2.64. Slovakia's acceptance of the obligation to conserve biodiversity (it is a party to the 1992 Biodiversity Convention) is perhaps less than fully reflected in the Counter-Memorial, which devotes two pages to the impacts of Variant C on the natural environment (flora, fauna, ecology). Moreover, these 2 pages are devoted exclusively to fish.[146] No new data or monitoring results are provided to support affirmation of Variant C's "successful implementation", and no scientific evidence or arguments is adduced. The Counter-Memorial simply asserts that "the [Slovak] floodplain and branch system of the river is preserved and restored",[147] a claim which is supported only by a number of photographs.[148] However green the forest appears to be, these photographs do not provide any proof of a healthy wetland vegetation community.

2.65. This lack of interest is particularly serious in face of mounting evidence that Variant C has occasioned "serious damage or threat to biodiversity" within the meaning of Article 22 of the Biodiversity Convention,[149] including in respect of fish.[150] Alluvial biotopes of the Szigetköz have lost the specific character of floodplain territories.[151] The loss of connection between the main channel and various water bodies, the decrease in surface water and groundwater levels and the lack of inundations will together have drastic effects on the functioning and productivity of the alluvial wetland ecosystem, and the first signs of a serious decline in biodiversity are now evident.[152]

2.66. The detailed effects are described in the *Scientific Rebuttal*, *Figure 5.1* of which shows the effects of Variant C in reducing leaf area

---

145 SC-M, para 7.44.

146 SC-M, paras 8.35-8.39. SC-M, para 8.35, fails to respond to HM, Appendix 1, which detailed botanical and zoological impacts of Variant C.

147 SC-M, para 7.27 (emphasis in original).

148 SM, illus 36A-D; SC-M, illus CM-6 and CM-18.

149 HC-M, paras 3.52-3.65.

150 See *Scientific Rebuttal*, HR, vol 2, chap 6.3.

151 HC-M, paras 3.57-3.58; *Scientific Evaluation*, HC-M, vol 2, chap 4.

152 *Scientific Rebuttal*, HR, vol 2, chap 5.2.

values in the Szigetköz by between 20% and 28%.[153] Amongst other documented effects: the shoot heights of the common reed (*Phragmites australis*) was on average 10-25% lower on sites in the Szigetköz after the diversion;[154] the average leaf area and shoot height of tall plantain (*Plantago altissima*) decreased by up to two-thirds, pointing to the likely ultimate destruction of the highly diverse flood meadows;[155] the mean leaf size of the yellow water lily (*Nuphar lutea*) was 50% and 75% less than that of control plants in 1993 and 1994, indicating extinction within three years.[156] *Plate 5.2* illustrates the original state as surveyed in the Szigetköz between 1980 and 1992. *Plates 5.1a* and *5.1b* show the colonisation of habitats and the invasion of weeds since the implementations of Variant C. *Plate 5.4* illustrates the expected effects of Variant C on changes in spatial cover with wetland vegetation (4500 hectares of total loss and 3500 hectares of partial loss), similar to that expected for the Original Project (see *Plate 5.3*).[157]

(f) Soils and agriculture, fisheries and forestry

(i) Soils and agriculture

2.67. Slovakia does not deny Hungary's claim of significant damage to soil and agriculture.[158] Rather, it suggests that some of Hungary's measurements were "no longer valid after August 1993" (following an increase in the recharge to the side-arms and increased flow into the Mosoni Danube),[159] that short-term changes are "uncertain" and unsupported by statistics (in the case of drop in crop yields),[160] that Hungary's response of growing "deeper rooting crops" is not correct,[161] and that in Slovakia "there has been no decrease in the quality of soil or groundwater to date".[162] Each of these points is dealt with in the Hungarian Counter-Memorial[163] and in the *Scientific Rebuttal*.[164]

---

153 HR, Annexes, vol 3, annex 5.

154 HR, Annexes, vol 3, annex 5, *Fig 2*.

155 HR, Annexes, vol 3, annex 5, *Fig 3*.

156 HR, Annexes, vol 3, annex 5, *Fig 1*.

157 *Plates 5.1-5.4* are found in the *Scientific Rebuttal*, HR, vol 2, chap 5.

158 SC-M, paras 8.27-8.30.

159 SC-M, para 8.27.

160 SC-M, para 8.28.

161 SC-M, para 8.29.

162 SC-M, para 8.30.

163 HC-M, paras 3.66-3.71; *Scientific Evaluation*, HC-M, vol 2, chap 5.2.3.

164 See *Scientific Rebuttal*, HR, vol 2, chap 6.1.

2.68. The observed impacts of Variant C have borne out Hungary's concerns about short-term impacts on soil and agriculture, although it remains too early for long-term effects to be readily discernible.[165] Recent analysis provides a further basis for understanding the significant effects of groundwater changes on soil conditions.[166] *Plate 6.2* shows the average condition of sub-irrigation in the growing season (1980-1992). The corresponding conditions after implementation of Variant C are shown in *Plate 6.4* in the *Scientific Rebuttal*. They show a dramatic and significant reduction in the area receiving natural sub-irrigation supply – including a 78.3% loss in agricultural areas in the Middle Szigetköz. Further evidence is provided in *Figure 6.1*, which shows observed soil moisture profiles and associated groundwater levels at a representative location in the Szigetköz before and after the completion of Variant C. The figure confirms the significant loss in soil moisture.

2.69. Four 1993 reports in Slovak from the Irrigation Farming Research Institute (VUZH), Bratislava, have been deposited by Slovakia with the Court. They mirror Hungarian concerns and demonstrate that as late as 1993 research into the issues of concern was incomplete and amelioration measures not yet defined.[167] Translated extracts from these reports clearly demonstrate the potential for serious long-term effects of Variant C, including "a wide range of changes in the properties and transport characteristics of farmland soil".[168] According to one of the Slovak Reports:

> "The ecological effects of the operation of the Danube Barrage System will probably affect extensive agricultural areas in the Žitný Ostrov region...will bring about a *lasting* change in the depth of groundwater levels in the areas affected, which will be reflected in the modification of farmland soil characteristics and systems (especially with regard to the water regime and the temperature system)."[169]

Similar concerns are expressed in relation to the adequacy or completeness of scientific research on this point.

---

165 *Scientific Rebuttal*, HR, vol 2, chap 6.1.1; *Scientific Evaluation*, HC-M, vol 2, chap 3.4.3.

166 E Molnár, G Palkovits and K Rajkai, *Evaluation of the effect of the Danube Hydroelectric Barrage System on Soil Properties and Agricultural Production in the Szigetköz Region*, Budapest, 1995.

167 *Scientific Rebuttal*, HR, vol 2, chap 6.1.1.

168 Š Rehák *et al*, SC-M para 8.27, note 48; HR, Annexes, vol 3, annex 7, part 3.

169 HR, Annexes, vol 3, annex 7, part 2 (emphasis added).

2.70. Slovakia also claims that declining groundwater levels pre-dated Variant C and had led to a loss of capillary supply in large parts of Žitný Ostrov and Szigetköz.[170] These claims are exaggerated and misleading.[171] Slovakia's accusation that Hungary has failed to produce evidence of loss of capillary effect is fully addressed by the evidence provided in the *Scientific Evaluation*.[172]

(ii) Fisheries

2.71. Slovakia's claims as to fish habitats following Variant C are addressed above.[173] In support of its contention, Slovakia annexes a study by Kirka[174] which does not appear to distinguish clearly between the Original Project and Variant C, is based on limited data and makes numerous contradictory statements.[175]

2.72. Detailed evidence describing the significant effect of Variant C on fisheries has been provided in the Hungarian Memorial and Counter-Memorial.[176] The claim that fish habitats can be maintained or even improved is unsupported by the evidence, including considerable fish mortalities (15 tons in the Old Danube between rkm 1842-1802) and by scientific studies.[177] Similar conclusions apply to Slovakia's claim that conditions for fish prior to the damming were not good.[178] The *Scientific Rebuttal* refutes other Slovak claims, including those concerning the natural development of the river banks following implementation of Variant C, and in particular that changes would not occur in fish types in the reservoir, that better spawning grounds would be created, and that conditions in the tailrace canal are adequate.[179]

---

170 SC-M, paras 7.92, 7.93.

171 *Scientific Rebuttal*, HR, vol 2, chap 6.1.3. See also chap 4.4.1.

172 SC-M, paras 7.93, 7.97; *Scientific Evaluation*, HC-M, vol 2, chap 3.4.3.

173 See above, paragraphs 2.65-2.66.

174 SC-M, Annex 25.

175 SC-M, Annex 25. For example, at one point it indicates that "[n]o great changes will occur in the species of ichthyofauna of the reservoir", but later states that "the reservoir will become practically an isolated ecosystem, with ichthyocenoses depending on their own reproduction". See *Scientific Rebuttal*, HR, vol 2, chap 6.3.1.

176 HM, para 5.126-5.129; HC-M, paras 3.78-3.81; *Scientific Evaluation*, HC-M, vol 2, chap 5.4.4.

177 SC-M, paras 8.35-8.36; HC-M, paras 3.79, 3.81; *Scientific Evaluation*, HC-M, vol 2, chap 5.4; Nesemann and Moog, 1995, HR, Annexes, vol 3, annex 4.

178 SC-M, para 8.36; *Scientific Rebuttal*, HR, vol 2, chap 6.3.2, citing G Guti, 1993.

179 SC-M, para 7.104; *Scientific Rebuttal*, HR, vol 2, chap 6.3.2.

(iii) Forestry

2.73. Slovakia "recognizes the current unfavourable situation in the Hungarian side arms for the floodplain forests".[180] But this is no evidence that conditions could be restored by increases in recharge to the side-arms,[181] that nutrient input into the floodplain had been "dramatically" reduced prior to the damming,[182] or that the dying back of trees predates Variant C by at least ten years.[183]

2.74. Each of these claims is contradicted by the detailed evidence put forward by Hungary.[184] The drop in groundwater levels has produced calamitous effects on the annual increment in the long-term growth of forest, as evidenced in the *Scientific Rebuttal*, which summarises the new data.[185] This translates into significant economic losses. There was no decrease in timber productivity in the decades before the implementation of Variant C, since most of the Szigetköz experienced sub-irrigation by capillary rise and was subject to regular inundations.

(4) FLOOD CONTROL

2.75. Phase I of Variant C does not meet even the mutually agreed safety standards of the Original Project, particularly for the 100-year flood or the 1000-year flood.[186] Following the closure of the Danube the Čunovo weir could not safely handle the flood discharge for which it was designed: the moderate flood in November 1992 (of which only 2120 m^3/s had to be released at Čunovo) caused considerable damage in the downstream channel, on the floodplain, in the side-arms and at the structure itself.[187] The real danger to Hungary of uncontrolled flooding is accompanied by risks related to ice release.[188]

---

180 SC-M, para 8.31.

181 SC-M, para 8.31.

182 Cf SC-M, para 8.32.

183 Cf SC-M, para 8.33.

184 HC-M, paras 3.72-3.76; HC-M, *Scientific Evaluation*, vol 2, chaps 4.5, 5.3.4, 5.3.6.

185 *Scientific Rebuttal*, HR, vol 2, chap 6.2, esp *Fig 6.2*; Z. Somogyi, *et al*, 1995, HR, Annexes, vol 3, annex 6.

186 *Scientific Rebuttal*, HR, vol 2, chap 3.2.2; *Scientific Evaluation*, HC-M, vol 2, *Table 2.5* and *2.8*.

187 *Scientific Rebuttal*, HR, vol 2, chap 3.2.2.

188 Ibid.

2.76. Slovakia claims that the structures already provide adequate flood control up to 12,715 m^3/s.[189] The completed structures of Phase 1 of Variant C only have an 83% discharge capacity for the 100- and 1000-year design floods and would be unable to discharge the 100-year flood.[190] In fact, the Szigetköz area had reached a 100-year flood protection level by 1977. There was no need to build Variant C for flood control since the three villages between the power canal and the Danube could have been protected by reinforcing the "antiquated dykes". In fact, the construction and operation of the Čunovo Reservoir increases the hazard of ice floods.[191]

(5) NAVIGATION

2.77. Slovakia describes Hungary's contention that Variant C has had an adverse effect on navigation as "nonsense".[192] It invokes the support of various shipping interests for the changes introduced by Variant C,[193] notes the number of days Gabčíkovo was inoperable in 1993 (avoiding the fact that in 1994 it blocked the entire Danube for 36 days), and compares it to the previous state, which it describes without any evidence as "seven ford sections (shallows)...[and] the dangerously narrow Bagomer section", and then asserts that indeed Gabčíkovo can enable ships to pass difficult sections downstream of the canal, without mentioning that those difficult sections are caused by the increased bedload that results from the Gabčíkovo barrage itself.[194]

2.78. In fact, only two, not seven, areas of the Danube reach now bypassed with the canal posed difficulties, one near Dunakiliti which resulted from Project construction and the other, mentioned by Slovakia, at Bagomer.[195] Difficulties posed by conditions at Nagymaros are not at

---

189 SC-M, paras 8.07, 8.54.

190 This is calculated subjecting Variant C to the same safety levels as adopted for the Original Project: the 100-year flood should leave a 1.5 m freeboard, use 50 % of the turbine and lock capacity at Gabčíkovo and 75 % of the available discharge capacity at Čunovo. The 1,000-year flood should leave a 0.5 m freeboard, use 50% of the turbine capacity and 100% of the lock capacity at Gabčíkovo and 75-90% of the available capacity at Čunovo. Given these restraints, Variant C, Phase 1 fails to satisfy the safety requirements for flood release. See *Scientific Evaluation*, HC-M, vol 2, chap 2.4.4 and *Table 2.8*; *Scientific Rebuttal*, HR, vol 2, chap 3.2.2.

191 Ibid. See also HC-M, Annexes, vol 4 (part 1), annex 9.

192 SC-M, para 8.43.

193 SC-M, para 8.41.

194 SC-M, para 8.42; see Laczay, HC-M, Annexes, vol 4 (part 1), annex 8, p 440.

195 See Laczay, HC-M, Annexes, vol 4 (part 1), annex 8, p 440.

all remedied with the operation of Variant C. By contrast, the numerous difficulties caused by gates breaking and ships sinking[196] have resulted in Variant C adversely affecting navigation. Indeed, it closed the river completely to all navigation, for the first time in peacetime history. Slovakia has not demonstrated a technical or economic[197] need for the bypass canal as a navigation route. In addition, Hungary has been deprived of its riparian rights.[198]

(6) SEISMICITY AND GEOLOGY

2.79. Slovakia claims that Variant C was supported by "a comprehensive evaluation of the region's geological and seismic risks", including new studies and research "from 1991" (i.e., after Variant C was already being implemented).[199] Slovakia claims that the eventual location of the weir was "based on the latest geological research", and cites a "comprehensive study dated October 1994" (the Mahel' study).[200] Since the weir was completed in late 1992 (and geological work began much earlier) it is difficult to understand how its location could have been based on this "latest" research.

2.80. Hungary has previously explained its concerns about seismic and geological risk and provided extensive evidence to support those concerns.[201] Further independent evidence confirming the validity of those concerns is provided in the *Scientific Rebuttal*.[202] That evidence provides little comfort. It concludes, in relation to the Slovak Counter-Memorial's discussion of the issue generally, that there has been "no systematic study of risk" which has neither been thoroughly studied nor fully taken into account.[203] Its conclusions in regard to the Mahel' Report are damning: that the Report ignores the current regional tectonic setting; presents a model for the development of the Danube basin based on re-

---

196 See HC-M, paras 3.91-3.93.

197 See discussion in HC-M, paras 3.87-3.89, noting the lack of Slovak references to economic, business or traffic data.

198 Further rebuttal of other Slovak assertions can be found in the *Scientific Rebuttal*, HR, vol 2, chap 3.3.

199 SC-M, para 8.44. For an explanation of the invalidity of that assertion, see above, paragraphs 1.134-1.137; *Scientific Rebuttal*, HR, vol 2, chap 3.3.

200 SC-M, paras 8.44, 7.107. The Mahel' study is not appended but summarised in SC-M, Annex 26.

201 HM, paras 5.99-5.105; HC-M paras 1.157-1.170; *Scientific Evaluation*, HC-M, vol 2, chap 6.

202 *Scientific Rebuttal*, HR, vol 2, chaps 8.1-8.2.

203 *Scientific Rebuttal*, HR, vol 2, chap 8.4, refuting SC-M, paras 7.105-7.115.

worked seismic sections; fails to discuss earthquake epicentres, source zones or mechanisms; and generally "does not constitute an analysis of seismic hazard".[204]

(7) CONCLUSION

2.81. For these reasons, supplementing those given in earlier Hungarian pleadings, it is quite clear that the implementation and operation of Phase I of Variant C has caused and will cause significant adverse effects on Hungary and on the environment of the affected region. The extent of the long-term adverse impacts can only be determined over time, but that there will be such impacts is beyond doubt. And this has been widely recognised.

SECTION D. VARIANT C AND THE ORIGINAL PROJECT

2.82. Slovakia's legal justification for Variant C rests on the argument that it is an "approximate application" of the Original Project and that it is "basically identical to the Gabčíkovo section of the Treaty Project".[205] It also continues to claim that Variant C represents "a provisional solution leaving entirely open the possibility of a full return to the 1977 Treaty."[206] These are essentially factual claims. Is it true, in fact, that the two projects (the Original Project and Variant C) are "basically identical"? Is it true, in fact, that Variant C as now established is, and is intended to be, temporary or provisional?[207]

(1) VARIANT C IS TECHNICALLY DIFFERENT FROM THE ORIGINAL PROJECT

2.83. Hungary denies that the "approximate application" argument has a basis in international law.[208] It has never acknowledged, implicitly or

---

204 *Scientific Rebuttal*, HR, vol 2, chap 8.3.

205 SC-M, para 11.07.

206 SC-M, para 1.20 (emphasis in original). Elsewhere Slovakia has variously claimed that Variant C is "an approximate implementation of *only one part* of the G/N Project" (SC-M, para 8.02), or that it "*exactly* consisted of putting into operation the Gabčíkovo part without Nagymaros and without peak operation" (SC-M, para 10.28), or that it is "just *the reduced version* of the Gabčíkovo sector of the Treaty Project" (SC-M, para 10.59), or that the Original Project and Variant C are "interchangeable" (SC-M, para 10.59) (emphases added).

207 See below, paragraphs 2.90-2.93, 3.64-3.65.

208 HC-M, paras 6.82 -6.104.

otherwise, that Variant C "simply represents a partial application of the agreed Treaty terms" as claimed by Slovakia.[209] But even if "approximate application" had any basis in international law, it is obvious that Variant C is a substantially different project from that envisaged by the 1977 Treaty.[210] These differences relate to Variant C's design and construction, to its operation, to control over its operation and to its effects.

2.84. Slovakia seeks to emphasise the similarities between the design and construction of Variant C[211] and the Original Project, and to minimise the differences. It suggests that the only two technical differences (described as "minor") are "the reduced size of the reservoir, and the changed location of the damming of the Danube".[212]

2.85. In fact, the differences of design and construction are significant[213] and were known to both sides as early as 1983.[214] These differences include:

(a) In relation to Phase I of Variant C:

* a bypass of the main riverbed with an *additional* 10 kilometres between rkm 1842 and 1852;[215]
* a *decreased* flood releasing capacity of the Gabčíkovo power plant because of the smaller number of turbines;[216]
* a *new* connecting dam cutting across the floodplain approximately 1.5 km from the Slovak-Hungarian border connecting the right bank of the reservoir with the new right-side reservoir dyke;[217]

---

209 SC-M, para 10.80.

210 See HM, paras 1.16-1.17, 3.138, 5.109, 7.04. See also HM, Annexes, vol 2, *Map* 5, comparing the upper sector of the Original Project and Variant C.

211 Remarkably, the benefit of flood protection is not mentioned in the long paragraph enlisting similarities between the Original Project and Variant C (SC-M, para 1.20).

212 SC-M, para 11.07.

213 HR, Annexes, vol 3, annex 77.

214 HM, para 3.44; HM, Annexes, vol 4, annex 161.

215 According to the Original Project "only" rkm 1842-1811 would have been bypassed.

216 Six of the planned turbines are operational, therefore their aggregated capacity (6x500 m^3/s) is 1,000 m^3/s smaller than that of the Original Project.

217 SC-M, para 8.52.

* a *new* 10.5 km long dyke[218] at the right side of that downstream section of the reservoir which is now functioning as the prolongation of the headwater canal;[219]
* a reservoir at Čunovo which is 30% *smaller* than the Hrušov-Dunakiliti reservoir would have been;[220]
* to the left of the new dam a *new* bypass weir which diverts a fraction of the flow back into the "old riverbed";[221]
* at the right end of the new connecting dam a *new* "inundation weir [which] diverts flood waters" with a spillway joining the by-passed main channel right at the border;[222]
* the *new* "intake into the Mosoni Danube";[223] and
* "very substantial *modification* of the hydroelectric power production from a peak to a continuous basis".[224]

(b) In relation to Phase II of Variant C:

* a *new* "auxiliary navigation lock";[225]
* another *new weir with three bays* enabling, *inter alia*, the discharge of bedload;[226] and
* a *new* hydroelectric power plant[227] consisting of five turbine units.

2.86. By any standard these are substantial differences. Associated with differences in cost, they make it wholly inappropriate to characterise Variant C as "basically identical" to the Original Project.

---

218 SM, para 5.29 speaks of a 10.5 km long dyke, SM, Annex 37 of an 11 km long one (p 356).

219 SC-M, illus CM-12.

220 SC-M, para 8.04.

221 SC-M, para 8.52.

222 SC-M, para 8.52 and illus CM-15A.

223 SC-M, illus CM-12.

224 SM, para 5.36 (emphasis added).

225 SM, para 5.35.

226 Ibid.

227 Ibid.

2.87. There are also significant *operational* differences. Whereas the Original Project provided for joint operation by Hungary and Czechoslovakia,[228] Variant C is under the exclusive control of Slovakia. It is "a purely national investment".[229] Day-to-day management, including decisions relating to water flows, navigation, flood control prevention measures, and volume of electricity generation, rest with Slovakia. All the electricity generated by Variant C has been appropriated by Slovakia.[230]

2.88. Perhaps most significantly, the differences between the Original Project and Variant C may be seen in the latter's *effects*, in particular on the waters of the Danube (including its quality and flow) and on Hungarian territory. These significant adverse effects have already been analysed.[231]

2.89. Variant C is thus markedly different from the Original Project. Under international law it is properly characterised as a "major change to an activity",[232] and as such should have been treated as a new project, subject to clear obligations under general international law, including the conduct of an environmental impact assessment and its proper notification to Hungary.

(2) VARIANT C IS A PERMANENT PROBLEM, NOT A TEMPORARY SOLUTION

2.90. The parties disagree as to whether Variant C is intended to be a provisional or permanent structure. Slovakia maintains that Variant C "had always been regarded by Czechoslovakia to be a reversible measure",[233] and in its pleadings it maintains the same position for itself:

---

228 HC-M, paras 3.03-3.05 describe in detail the difference in distribution of control rights as envisaged by the 1977 Treaty and related agreements and as they are exercised exclusively by Slovakia in connection with Variant C.

229 International Law Analysis of the Possibility of Implementing the Gabčíkovo Hydropower Plant as a Czechoslovak National Investment; HR, Annexes, vol 3, annex 64. See above, paragraph 2.31.

230 According to Dominik Kocinger this amounted to 4.5 million kWh from the commencement of the operation till December 1994; HR, Annexes, vol 3, annex 101.

231 See above, paragraphs 2.44-2.81, and see further HM, paras 5.111-5.112, 5.119-5.129; HC-M, paras 3.25-3.76.

232 See 1991 Espoo Convention, Art 1(v).

233 SC-M para 6.17.

Variant C has a "provisional or temporary character".[234] Hungary believes that Variant C is intended as a permanent structure.[235] This is so even if certain elements of Variant C are in an unfinished state. The bypass weir has never yet reached its hydraulic capacity (said to be 1460 m^3/s), and there are erosion problems in the boulder sections downstream of the weir.[236] The flood gates have never received the fortified spillway which was designed "as a result of the London Meeting to allow daily use" and which was "scheduled to be completed by January 1 1993".[237] But these are unplanned deficiencies, not indications of provisionality.

2.91. The reasons underlying the Slovak position may be found in the legal advice it received as early as December 1990 to the effect that the construction of Variant C would not violate international law if Czechoslovakia would "present" it as a provisional alternative.[238]

> "According to general international law, the Parties must refrain from all negotiations during the period of suspension which could prevent the renewed implementation of the Treaty (Article 72 of the Vienna Convention on the Law of Treaties). As a consequence, the Czech and Slovak Federal Republic must present Variant 'C' to the Hungarian partner as a provisional solution."[239]

Any suggestion that Variant C was permanent would, according to this advice, be inconsistent with the idea of temporary suspension of certain parts of the 1977 Treaty.[240]

---

234 See e.g., SC-M, para 5.63.

235 HC-M, paras 3.115-3.122.

236 SC-M, para 8.53.

237 EC Working Group, *Data Report*, 23 November 1992, HM, Annexes, vol 5 (part II), annex 14, p 427, referring to the London Meeting producing the Agreed Minutes in which it was guaranteed that the whole of the original flow of the Danube would be returned through the Čunovo structures into the main channel (HM, Annexes, vol 3, annex 31, p 341).

238 HR, Annexes, vol 3, annex 64. See above, paragraphs 2.31-2.32.

239 International Law Analysis of the Possibility of Implementing the Gabčíkovo Hydropower Plant as a Czechoslovak National Investment, October 1990; HR, Annexes, vol 3, annex 64 (emphasis added). The word "present" in the Czech original is "prezentovat". The term "negotiations" in the penultimate sentence is presumably a transcription error for "acts", which is the word in Art 72 of the Vienna Convention.

240 Letter of M Čalfa to J Antall, 23 January 1992; HM, Annexes, vol 4, annex 73, at 133-134.

2.92. Variant C has thus been "presented" as "provisional" for reasons of legal strategy. And it is clear that the characterisation of Variant C as "provisional" is presentational rather than substantive. All the evidence supports the conclusion that Variant C is intended to be a permanent structure, in particular in relation to its Phase 2, which is now substantially complete. This point was made by Engineer J Obložinský, who was then and is still (May 1995) a senior official of the Bratislava-based state company responsible for Variant C. In a 1989 interview with *Pravda* he was asked:

> "[Q] What is the use of a provisional alternative? Doesn't it mean, as we have stressed many times before, the substantial increase in the costs incurred by the construction of the Barrage System?
>
> [A] *We can only speak about a provisional alternative in phase one.* We will first build the leading dam mentioned above 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. The linking of the old Danube bed, to be performed via water that will be obtained from the reservoir in accordance with the provisions of the 1977 agreement in terms of quantity, will be done via a dam, therefore no costs will be incurred by the construction of a new dam... If the Hungarian side decides not to finish the construction of units on its own territory we will, during the next phase, use clack-valves to make the regulation of water level possible in the reservoir up to the planned height. *The provisional alternative could, in this way, no longer be considered provisional.*"[241]

2.93. This entirely accurate account of the plans for Variant C was given as early as 2 November 1989 – more than a year and a half before initial planning for Variant C is said by Slovakia to have begun.[242] It seems that Engineer Obložinský had uncanny predictive powers. And he certainly did not think that Phase 2 was "provisional".

---

241 HR, Annexes, vol 3, annex 60 (emphasis added).

242 According to SC-M, para 5.67. See above, paragraph 2.42.

SECTION E. MITIGATION OF DAMAGE AND THE 1995 AGREEMENT (THE ISSUE OF A TEMPORARY WATER MANAGEMENT REGIME)

2.94. Although Slovakia asserts that Variant C has caused little or no damage, it has so far made no great attempt to substantiate that claim. The emphasis in its argument has rather been that *Hungary* is to blame for the damage caused by Variant C: "it is Hungary that has caused harm to itself by refusing to permit the recharge of the branch system on its side of the Danube."[243]

(1) ATTEMPTS TO MITIGATE DAMAGE OF VARIANT C

2.95. Prior to Variant C, the Danube in the Szigetköz region received an average discharge of about 2000 m^3/s, with considerable fluctuations in discharge and frequent flooding. Under Variant C, Hungary received an average discharge of 353 m^3/s in 1993, 217 m^3/s in 1994, and 177 m^3/s for the first three months of 1995, with infrequent floods and very little fluctuation.[244] Hungary has constantly sought to improve this situation, but measures taken by Hungary in isolation can have only a very limited impact;[245] essentially what is needed is a higher discharge and an adequate discharge regime.

2.96. Hungary has repeatedly sought to agree, first with Czechoslovakia and subsequently with Slovakia, on these requirements. The record of these attempts is illuminating:

* Under the London Agreement of 28 October 1992, Czechoslovakia agreed to "maintain the whole* traditional quantity of water" discharged into the Danube channel with "whole" defined as "*not less than 95%".[246] At no stage did it comply with the Agreement.

* In the context of the EC's mediation, it was agreed at the trilateral meeting of 27 November 1992 that "pending the judgement by the International Court of Justice, a temporary regime of management of the Danube water along the lines of the London Agreed Minutes of 28 October 1992 and based upon the report of the Working

---

243 SC-M, para 11.42.

244 HR, Annexes, vol 3, annex 1.

245 E.g., pumping from the river; see HC-M, para 3.113.

246 See HM, 3.191; HC-M, 2.78-2.83. For the London Agreement see HM, Annexes, vol 3, annex 31, p 341.

Group" would be applied.[247] No such regime was established before the dissolution of Czechoslovakia.

* In negotiating the Special Agreement, Slovakia insisted on the exclusion of any application to the Court for interim measures of protection. Hungary was only prepared to agree on condition that Slovakia committed itself to agree on and implement a temporary water management regime, if necessary with the assistance of the EC. Article 4(1) of the Special Agreement so provides.[248] But Slovakia continually refused to agree on or implement a temporary water management regime under Article 4.[249]

* On 26 August 1993, Slovakia agreed to establish a Group of Monitoring and Water Management Experts, again within the framework of EC good offices. The Group was to make recommendations on a Temporary Water Management Regime. Hungary accepted the recommendations when they were made; Slovakia, after some equivocation, rejected them.[250]

* In a *Note Verbale* of 8 June 1994, Slovakia declared a willingness to increase the discharge of the Mosoni Danube intake structure.[251] On 24 August 1994 Slovakia undertook to double the discharge into the Mosoni Danube from 20 to 40 m^3/s.[252] No such increase occurred, although after early September 1994 average discharges increased to the 20-33 m^3/s range.

2.97. None of these failures was attributable to Hungary. But their consequence – and in particular the failure of Slovakia to comply with Article 4(1) of the Special Agreement – was that in Spring 1995 the Szigetköz approached a third growing season since the diversion without any effective guarantee of additional water.[253]

---

247 HM, Annexes, vol 4, annex 105, p 236.

248 See HM, 2.09-2.12; HC-M, 2.107-2.109. For the Special Agreement see HM, Annexes, vol 3, annex 32.

249 See HM, 3.187-3.223; HC-M, para 2.109.

250 See HM, para 3.221; HC-M, paras 2.107-2.117, 3.221.

251 HC-M, Annexes, vol 3, annex 70. See also HC-M, para 2.116.

252 HC-M, Annexes, vol 3, annex 73. See also HC-M, para 2.116.

253 The only option available to Hungary without Slovak action was to pump water from the main channel to the side branches. This was an expensive and strictly short-term expedient. See HC–M, para 3.113.

2.98. Against this background, for Slovakia to blame Hungary for causing the damage[254] is remarkable – a classic case of "blaming the victim". It is all the more remarkable for the fact that as early as 1991 Slovakia's advisors had recommended significantly increased flows simply to maintain a substantial part of the existing flora and fauna.[255]

(2) MITIGATION THROUGH "UNDERWATER WEIRS"

2.99. Instead of providing more water, Slovakia has continually called for the building of a series of underwater weirs, which in its view would "solve" the problem. During the EC negotiations on a Temporary Water Management Regime, Slovakia proposed the construction of no fewer than 9 weirs in the Old Danube to sustain water levels, with a crest level approximately 4.5 metres above the riverbed.[256] The EC Expert Group recommended the building of two weirs, combined with an average discharge of 800 m^3/s, and three yearly floods of more than 3500 m^3/s, a recommendation accepted by Hungary.[257] More recently, Slovakia

---

254 SC-M, para 11.42.

255 See HR, Annexes, vol 3, annex 77.

256 I Mucha, *Report on Temporary Water Management Regime – Independent Scenario* (Bratislava, November 1993). During the EC negotiations in 1993 a scenario for eight weirs was introduced, with a crest height of ca 4.2 m: EC Working Group, *Report on Temporary Management Regime*, Bratislava, 1 December 1993, Scenario 3; HM, Annexes, vol 5 (part II), annex 19. Their environmental effects were described in the *Scientific Evaluation*, HC-M, vol 2, chaps 2.5, 4.6.1. The 8 or 9 weirs presented during the EC negotiations were similar to the weirs studied by Hungary in 1977, see above, paragraph 1.142. They are also similar to the weirs implemented at the abandoned channels of the Upper Rhine (HC-M, Annexes, vol 4 (part 2), annex 14), but different from those 1 m high bottom sills contemplated but not adopted in 1989 (*Scientific Rebuttal*, HR, vol 2, chap 7.1.2).

257 According to the headings of the Report, describing different approaches (scenarios), any recommendation of the Working Group on the temporary water management regime was to be based on collecting data and identifying impacts on –

* discharges, water levels and flow velocities
* erosion/sedimentation
* surface water quality
* groundwater regime
* groundwater quality
* flora and fauna
* agriculture and forestry
* electricity production.

EC Working Group, *Report on Temporary Water Management Regime*, 1 December 1993; HM, Annexes, vol 5 (Part II), annex 19, pp 750-751.

proposed the construction of a single weir at rkm 1843 in order to "restore" the side branches of the Szigetköz.[258]

2.100. Hungary's position on these weirs has been consistent. By themselves they may have a limited short-term beneficial effect, *if* they are combined with increases in discharge.[259] In the longer term, and especially without an elaborated discharge regime providing for fluctuations in volumes and for periodic floodings, they will have a harmful effect; far from providing a long-term solution, in the long-term they will be a further part of the problem.[260]

(3) THE 1995 AGREEMENT CONCERNING CERTAIN TEMPORARY TECHNICAL MEASURES AND DISCHARGES

2.101. On 19 April 1995, Slovakia and Hungary concluded an Agreement concerning Certain Temporary Technical Measures and Discharges in the Danube and Mosoni Branch of the Danube.[261] Under the Agreement, Slovakia is to provide a slightly increased discharge (annual average of 400 m^3/s) into the Danube and 43 m^3/s into the Mosoni Danube, while Hungary is to construct a weir at rkm 1843. The Agreement is temporary and provisional, and is concluded on a without prejudice basis (Article 6). It is subject to termination for breach on one month's notice (Article 5) and terminates 14 days after the Court's judgement in the present case (Article 6). Article 7 provides:

> "On the termination of this Agreement and unless it is otherwise agreed or decided, Hungary shall at its own expense remove the weir..."[262]

2.102. The 1995 Agreement only covers certain technical measures necessitated by the ever worsening state of the Szigetköz. It provides the technical means of marginally increasing water levels in the Szigetköz, including the main riverbed. This temporary technical measure does not amount to a temporary water management regime within the meaning of Article 4 of the Special Agreement. It only relates to one aspect of the complex water management issues which were discussed by the EC Working Group. Technically it is different from the 1993 December EC

---

258 SC-M, illus CM-12 and paras 8.06-8.13.

259 See e.g., HM, Annexes, vol 4, annex 132 for a statement of the Hungarian position.

260 For substantiation see *Scientific Evaluation*, HC-M, vol 2, chaps 2.5, 4.6; *Scientific Rebuttal*, HR, vol 2, chap 7.

261 HR, Annexes, vol 3, annex 24.

262 HR, Annexes, vol 3, annex 24.

proposal, since it will only lead to a 100 m^3/s average increase of volume in the main channel below rkm 1845 (the rest of the increase being supplied to the side branches) without any significant water level increase downstream of the Dunakiliti weir. It entails only the construction of one temporary underwater weir at a location different from the suggested sites of the two weirs in the 1993 proposal.[263]

2.103. In Hungary's view,[264] the 1995 Agreement in no way constitutes a temporary water management regime for the purposes of Article 4, and its title suggests as much. It is simply a temporary mitigation measure of a partial character, concluded in the hope that it may provide some short-term relief to the affected area.

2.104. Unfortunately, even the short-term impact of the weir is likely to be limited, as the *Scientific Rebuttal* shows in some detail: see especially its *Plate 7.4*, which suggests that under comparable scenarios there will be a maximum increase of the groundwater table of less than 0.6 m, and that the area influenced by rises of 0.5 m or more will be less than 400 ha.[265] Another study evaluated the potential long-term changes in the productivity of forest stands in the active floodplain.[266] A 100 m^3/s recharge in the Hungarian side branches and a weir in the Danube channel at rkm 1843 would appear to result in only a 5% improvement to forest productivity, compared with the significantly decreased productivity after implementation of Variant C.[267] In general these demonstrate that the Danube main channel continues to act as a drain even with discharges of 300 m^3/s into the main riverbed and 100 m^3/s into the side branches.

2.105. The advice given to the Slovak Government by its own advisers is unambiguous on this point: they recommended "that the old riverbed should be supplied with *at least* 600 m^3/s water flow" and that during the

---

263 The 1995 Agreement prescribes a 400 m^3/sec yearly average discharge in the main channel with no provision for floods; the EC Working Group Report recommended 800 m^3/sec and 1-3 floods yearly if hydrological conditions permitted (HM, Annexes, vol 5 (Part II), annex 19, p 816).

264 As expressed in the declaration of the Government of 19 April 1995: HR, Annexes, vol 3, annex 104. Slovakia's position was different; HR, Annexes, vol 3, annex 106.

265 See *scientific Rebuttal*, HR, vol 2, chap 7.3.4.

266 Z Somogyi *et al*, *Assessment of long-term changes in the productivity of forest stands in the Szigetköz that can be expected under different water regimes.* Budapest, 1995; HR, Annexes, vol 3, annex 6.

267 See *Scientific Rebuttal*, HR, vol 2, *Plate 6.4*.

growing season "this value leaps to 1300 m^3/s".[268] At this level "a *substantial* part of the plant cover (flora) and the wildlife (fauna) can be maintained at the present level of existence".[269] In other words even this level of water flow, significantly above the amount proposed for the Original Project or so far accepted by Slovakia, would lead to environmental damage.

SECTION F. SUMMARY OF CONCLUSIONS IN THIS CHAPTER

2.106. By way of summary this Chapter shows that:

(1) Variant C is consistent with long-standing Czechoslovak aspirations to unilateral action on the right bank of the Danube River (paragraphs 2.05-2.11). These were manifested in the 1950s (paragraphs 2.12-2.14) and subsequently, even after the 1977 Treaty had been concluded (paragraph 2.15).

(2) Implementation of Variant C began far earlier than Slovakia claims. The record from August 1989 to November 1992 is one of progress with Variant C, with plans having been approved and relevant financial decisions taken at the latest by January 1991 (paragraphs 2.18-2.30, 2.38-2.42). Implementation was based on a legal strategy of a "presentational" character and an economic strategy of minimising discharges to the Danube (paragraphs 2.31-2.37).

(3) Variant C has already had significant adverse effects on the environment and on economic activities in the region, and these effects will continue and increase (paragraphs 2.44-2.74). There are significant questions about claimed benefits for flood control (paragraphs 2.75-2.76) and navigation (paragraphs 2.77-2.78), and serious concerns as to the underestimation of seismic risk (paragraphs 2.79-2.80).

(4) Variant C is markedly different from the Original Project: as a matter of fact it is neither an "approximate application" of the Original Project (paragraphs 2.83-2.89), nor is it "provisional" (paragraphs 2.90-2.93).

---

268 Technical Description and Economic Assessment of the Temporary Commencement of Operations at the Gabčíkovo Hydroelectric Power Plant, June 1991; HR, Annexes, vol 3, annex 77, p 376 (emphasis added).

269 Ibid, p 378 (emphasis added).

(5) Hungary has done its best to mitigate damage caused by Variant C; the main reason for its limited success is the repeated failure of Slovakia to comply with successive commitments to increase discharges to the Danube (paragraph 2.96). The 1995 Agreement on Certain Temporary Technical Measures involves only minor increases in discharge; it will have only a very limited impact and does not constitute compliance with Article 4 of the Special Agreement (paragraphs 2.102-2.103).

CHAPTER 3

ARTICLE 2 OF THE SPECIAL AGREEMENT: THE QUESTIONS FOR THE COURT

3.01. This Chapter deals with the questions the Court is asked to decide by Article 2 of the Special Agreement. The three questions identified in Article 2(1) will first be dealt with as follows:

Section A: The Suspension and Cancellation of Works (paragraphs 3.03-3.40)

Section B: The Illegality of Variant C (paragraphs 3.41-3.68)

Section C: The Termination of the 1977 Treaty (paragraphs 3.69-3.158)

3.02. Hungary will then turn to the remaining issues identified in Article 2(1) of the Special Agreement, by which the Court is asked to determine "the legal consequences, including the rights and obligations for the Parties" of its conclusions on the first three questions. Specifically, the focus here is on legal consequences in terms of restitution, reparation and compensation (**Section D**, paragraphs 3.159-3.178).

SECTION A. THE SUSPENSION AND CANCELLATION OF WORKS

3.03. The first question for the Court is whether Hungary was entitled to suspend and subsequently abandon work on the Nagymaros Project and on the part of the Gabčíkovo Project for which the Treaty attributed responsibility to Hungary (Special Agreement, Article 2(1)(a)). Hungary relied on necessity as a circumstance precluding the wrongfulness of its suspension and abandonment of works at Nagymaros in May 1989, its suspension at Dunakiliti in July 1989 and at Gabčíkovo in 1991.[1] The Treaty itself was not abandoned, or even formally suspended, at any time prior to its termination.[2]

3.04. In the light of Czechoslovak arguments at the time and Slovak arguments in its pleadings, this raises four distinct issues:

---

1 For an analysis of the factual situation see HM, paras 9.01-9.42; HC-M, paras 5.25-5.38. For Slovakia's responses see SM, para 8.28-8.57; SC-M, paras 10.02-10.31.

2 See Note of Minister Mádl; HC-M, Annexes, vol 3, annex 54.

(1) Did the 1977 Treaty preclude Hungary from invoking necessity?

(2) Was joint ascertainment of the facts a prerequisite?

(3) Did Hungary meet the applicable legal requirements for invoking necessity?

(4) Did Hungary act reasonably in continuing its suspension until termination of the Treaty in 1992?

SUMMARY OF HUNGARY'S ARGUMENTS ON SUSPENSION

3.05. Hungary was entitled to invoke necessity for its initial suspension of works and for its subsequent actions. The primary justification was Hungary's well-founded and genuine concerns as to the threats posed by the Project to the environment, and especially water resources.[3] These concerns were compounded by Czechoslovakia's breaches of the 1977 Treaty; its refusal to cooperate in the performance of an EIA, and its insistence on proceeding with the implementation of Gabčíkovo with or without Hungary. Taken together, these circumstances resulted in a continuing state of necessity, eventually justifying termination of the 1977 Treaty.[4]

3.06. Slovakia claims to take "a very different view" of the factors which justified suspension and later abandonment of the works,[5] and rejects Hungary's essential arguments. As to the facts, it argues that Hungary did not act in good faith; that its concerns were either unjustified or exaggerated, and that any remaining problems could have been mitigated by such measures as "underwater weirs". These factual arguments have already been dealt with in earlier Chapters.[6] But Slovakia also relies on a number of legal arguments, reviewed here.

(1) DID THE 1977 TREATY PRECLUDE HUNGARY'S RIGHT TO INVOKE THE LAW OF STATE RESPONSIBILITY?

3.07. Slovakia argues that the Vienna Convention on the Law of Treaties alone provides a basis for suspending the performance of a treaty.[7] Thus Hungary cannot invoke any "circumstances precluding

---

3 See above, paragraphs 1.100-1.144.

4 Necessity as it relates to termination will be dealt with in paragraphs 3.114-3.118.

5 See SC-M, para 10.07.

6 See above, paragraphs 1.59-1.149; see also HR, vol 2, Appendix 6.

7 See SM, para 8.10; SC-M, para 10.01, note 1.

wrongfulness" under the law of state responsibility to justify non-performance of the 1977 Treaty. Slovakia also argues that the 1977 Treaty specifically excludes arguments of necessity as a justification for stoppage of works.[8]

3.08. These arguments are incorrect. Conduct in relation to a treaty may be justified on the basis of the law of treaties and on the law of state responsibility.[9] Article 17 of Part 1 of the ILC's Draft Articles on State Responsibility provides that "the origin of the international obligation breached by a State does not affect...international responsibility",[10] and this reflects the position under general international law. The Vienna Convention itself expressly provides that it does not "prejudice any question that may arise...from the international responsibility of a State."[11]

3.09. These conclusions as to the relationship between the law of state responsibility and the law of treaties were endorsed and applied in the *Rainbow Warrior Case*.[12]

3.10. Slovakia refers to Hungary's suspension as if it were a suspension of the 1977 Treaty.[13] Hungary never suspended the Treaty. Even after the handing over of works at Gabčíkovo to Czechoslovakia in 1991, Hungary continued to work within the framework of the Treaty. The Joint Operational Group continued to work on ways in which Treaty concerns could be resolved.[14] During the entire period of suspension until termination on 19 May 1992, Hungary attempted to work within the framework of the Treaty and to negotiate with Czechoslovakia in an attempt to resolve its concerns. As late as 16 May 1992, Minister Mádl indicated Hungary's willingness to maintain the Treaty in force if work on Variant C would be suspended.[15]

---

8 SM, paras 8.58-8.60.

9 See the extensive discussion in HC-M, paras 5.03-5.22.

10 *ILC Ybk* 1976/2(2), pp 79, 82 (para 11). See detailed discussion in HC-M, paras 5.15-5.17.

11 Art 72; see HC-M, para 5.18. For the status of the Vienna Convention in relation to the 1977 Treaty see HM, para 10.47; HC-M, paras 5.04-5.05.

12 *Rainbow Warrior Arbitration* (1990), 82 ILR 499, esp at p 550 (para 75); see HC-M, paras 5.19-5.21.

13 SC-M, para 10.31.

14 The Joint Operational Group's mandate was set forth in a Protocol of a meeting of the Governmental Plenipotentiaries, 24-26 November 1980; HM, Annexes, vol 4, annex 9, appendix 1.

15 See HC-M, Annexes, vol 3, annex 54, and for the story see HC-M, para 2.72.

3.11. Slovakia argues that "[t]he Treaty contained the mechanisms for ongoing provision *of ecological guarantees*"[16] and that those mechanisms must be utilised:[17] the 1977 Treaty had "its own provisions to ensure that there are no ecological catastrophes."[18]

3.12. This is not so. The general provisions of the Treaty dealing with environmental protection had to be *applied* to be meaningful, and they did not envisage the level of environmental harm and risks that turned out to be involved. The Treaty also established a mechanism for decision-making, but in the absence of decisions under the mechanisms they did not assist.[19] In fact the one significant Czechoslovak "conclusion" that might have begun to alleviate Hungary's concerns – a substantially increased discharge regime with periodic (weekly) inundations – was never communicated to Hungary.[20]

3.13. Slovakia stresses that the Treaty had its "own dispute resolution provisions",[21] implying that the law of state responsibility could play no role. It is true that Article 27 provided for negotiations between the parties. But it did not provide any third party procedure for settlement of disputes.[22] Hungary negotiated in good faith throughout.[23] Slovakia seems to argue that on the one hand there was no duty to negotiate in good faith pursuant to Article 27 of the Treaty,[24] and on the other hand that Hungary was limited exclusively to the terms of Article 27.[25] Here, as elsewhere, the Treaty's provisions do not exclude the application of general international law.[26]

---

16 SC-M, para 10.07 (emphasis added).

17 SC-M, para 10.07.

18 SC-M, para 10.39.

19 See above, paragraph 1.80.

20 See above, paragraph 1.77. Czechoslovakia insisted from late 1989 onwards on the construction of Nagymaros, and offered only unspecified "ecological guarantees" in a separate agreement to be negotiated; see HR, vol 2, Appendix 6.

21 SC-M, para 10.39.

22 See discussion in HM, para 4.13.

23 See HC-M, paras 2.118-2.128.

24 See SC-M, para 2.23.

25 SC-M, para 10.39.

26 This is specifically recognised in Art 2 of the Special Agreement; see HM, para 2.05.

Conclusion

3.14. Hungary is not precluded from invoking the law of state responsibility either under general international law or under the 1977 Treaty.

(2) WAS JOINT ASCERTAINMENT OF THE FACTS JUSTIFYING SUSPENSION OF WORKS NECESSARY PRIOR TO SUSPENSION?

3.15. Slovakia asserts that "a State has no duty to set aside its entitlement to rely on the principle of pacta sunt servanda, to negotiate for the abandonment of a treaty in which it has made a huge investment, in order to accommodate apparent economic and political needs of the other party".[27] Hungary fully agrees. But the proposition is irrelevant in the present case. Hungary demonstrated clear justifications for its actions, which are not appropriately described as "apparent economic and political needs".[28] The essential issue is whether, as Slovakia suggests, "there can be no suspension of Treaty performance without joint objective ascertainment of facts that require such an action."[29]

3.16. The problem here was that the activities in question – the construction of the Nagymaros Barrage, the closure of the Danube – were continuing activities which would *themselves* cause the apprehended harm, and which – in Hungary's view – gave rise to a state of necessity. Any claim of necessity involves a risk to the invoking party if it cannot substantiate the claim. If there is a dispute, the parties are under an obligation to try to resolve it by all available means.[30] But the doctrine of necessity is not suspended in the meantime, pending some possibly dilatory and inconclusive procedure of "joint objective ascertainment of facts".

3.17. Four factors in the present case led to Hungary's invocation of necessity: *first*, no proper EIA or its equivalent had ever been carried out on the Original Project;[31] *second*, Czechoslovakia was in breach of Treaty provisions;[32] *third*, a better understanding of the risks entailed by

---

27 SC-M, para 10.11.

28 See, e.g., *Scientific Evaluation*, HC-M, vol 2 and *Scientific Rebuttal*, HR, vol 2.

29 SC-M, para 10.11; see also SC-M, para 10.07.

30 As Hungary sought to do; see above, paragraphs 1.30-1.33, 1.42-1.44. See also HR, vol 2, Appendix 6, paras 7, 23-26, 34-36, 45-51.

31 See above, paragraphs 1.64-1.83; see also HR, vol 2, Appendix 6, paras 7, 23-26, 34, 36, 45-51.

32 See below, paragraphs 3.71-3.73.

the Original Project was rapidly developing in conjunction with the democratic revolution in the region;[33] and *fourth*, increasing and increasingly *available* evidence of environmental damage, particularly in relation to water resources, showed a real risk of significant irreversible harm.[34]

3.18. In the absence of an EIA or its equivalent on the Original Project, Czechoslovakia's rejection of Hungary's concerns was unsubstantiated.[35] It is significant that Slovakia's primary response to this argument is to present as an EIA equivalent a series of studies which it has so far refused to make available to Hungary.[36] Elsewhere in the world, EIA is a public procedure.

3.19. Slovakia denies the basis and validity of Hungary's 1989 assessment,[37] and claims that Hungary never informed Czechoslovakia of its grounds for action.[38] Hungary did have a reasonable basis for its concerns in 1989,[39] and it did inform Czechoslovakia of this, at the level of the Government Plenipotentiaries[40] and through interchanges between the two Academies of Sciences.[41] Czechoslovakia can have had no doubt as to Hungary's reasons; from May to July 1989 it engaged in the creation of a committee to examine the environmental risks.[42] This is itself a good indication that the significance of Hungary's concerns was

---

33 This allowed free discussion of the issues and access to previously secret documents: see, e.g., HR, Annexes, vol 3, annex 55.

34 See above, paragraphs 1.85-1.92, 1.100-1.140.

35 SC-M, para 10.48 ff.

36 See above, paragraphs 1.66-1.73.

37 SC-M, chap IV, and paras 7.05 ff.

38 SC-M, para 5.17.

39 See above, paragraphs 1.85-1.92.

40 Hungary handed over summaries of its concerns, which cited numerous documents on several occasions, including, *inter alia*, June 1989, November 1990, and December 1990. See Hungarian Academy of Sciences. *Report on Environmental, Ecological, Water Quality and Seismic Aspects of the Nagymaros Barrage Construction or its Cancellation*, 23 June 1989, HM, Annexes, vol 5 (part 1), annex 7; Letter from Mr G K Sámsondi, Hungarian Governmental Plenipotentiary, to Mr D Kocinger, Czechoslovak Governmental Plenipotentiary, 15 November 1990, HM, Annexes, vol 4, annex 38; Summary of Expert Opinions taking a role justifying the Governmental decisions (V.13.1989-X.31.1989) concerning suspension of works and partial abandonment of the Gabčikovo-Nagymaros Barrage System. December 1990, HR, Annexes, vol 2, annex 67.

41 See, e.g., HM, para 3.92; HM, Annexes, vol 4, annex 43.

42 HM, paras 3.78-3.85.

accepted, as seems to have been the case, at the level of heads of government if not lower down, at the time.[43]

3.20. Slovakia insists that Czechoslovakia was ready to participate in joint studies, *provided that construction continued*.[44] But five years after Czechoslovakia applied for PHARE funds to carry out a comprehensive assessment involving the upstream sector, *few, if any, results appear to be available*. None have yet been provided. By contrast, Gabčíkovo was to commence operation of its first unit in 1990 and its last unit in 1992; Nagymaros was to commence operation of its first unit in 1992 and its last unit in 1993.[45] Slovakia's concept of a "joint study" or EIS is obviously at odds with international practice:[46] its maxim was operate first, repair later.

(3) DID HUNGARY MEET THE REQUIREMENTS FOR INVOKING NECESSITY?

3.21. Hungary and Czechoslovakia agree on the legal standard for invocation of necessity, that contained in Article 33 of the ILC's Draft Articles on the Law of State Responsibility.[47] Hungary meets the substantive criteria for a plea of necessity in relation to its suspension of construction at Nagymaros, Dunakiliti, and Gabčíkovo. Hungary has strictly grounded its pleas on each of the conditions set out in Article 33.[48] In particular, it has met the three essential pre-conditions: (1) the danger must be shown to be imminent and to threaten an essential interest, which could not be averted by other means;[49] (2) the act must not seriously impair a major interest of Czechoslovakia;[50] and (3) it must be of an exceptional character.[51] Each of these three conditions was satisfied.

---

43 See HR, vol 2, Appendix 6, paras 8-12. See also the terms of Czechoslovakia's PHARE application in October 1991, both of which vindicate Hungarian concerns and indicate that they had not been properly studied by Czechoslovakia before that time; HC-M, Annexes, vol 3, annex 48.

44 SC-M, para 10.24

45 See HM, Annexes, vol 3, annex 30.

46 See above, paragraphs 1.64-1.84.

47 HM, paras 10.06-10.16; SC-M, paras 10.38-10.44.

48 See HM, para 10.08. Slovakia does not attempt to demonstrate the alleged "originality" of the definition; SC-M, para 10.45.

49 HM, paras 10.17-10.31.

50 HM, paras 10.35-10.40.

51 HM, paras 10.32-10.34.

3.22. The ILC included as "an essential interest" of a State a situation where actions were taken "to ensure the survival of the fauna or vegetation of certain areas on land and sea, to maintain the normal use of those areas or, more generally, to ensure the ecological balance of the region".[52] Slovakia argues that these comments "both assumed a grave and imminent danger [to the environment] and were not at all addressed to the circumstances of this case".[53] Of course the ILC was not *commenting* on the present case, but its comments are nonetheless applicable. And its criteria are met here.

3.23. Vital interests of Hungary affected by the 1977 Treaty include: survival of the fauna and flora of the Szigetköz region; survival of one of the few remaining European wetlands; survival of the last European inland delta; maintenance of the region's ecological balance; and threats to the water reserves of Hungary and to the quality and quantity of the water supply of Budapest.[54] If these dangers are real, there can be no doubt that they are "grave". Moreover, if the Barrage System had been put into operation, they would have been "imminent".

3.24. Slovakia argues that "[t]he legal and factual situation in May 1992 could not retrospectively validate a suspension of work at Nagymaros in reliance on necessity in May 1989, nor an abandonment of work at Nagymaros in reliance on necessity in October 1989."[55] This misunderstands the Hungarian position.

3.25. Continuation of construction at Nagymaros, Dunakiliti and Gabčíkovo would have imminently threatened essential interests of Hungary.[56] With respect to each, a state of necessity existed at the relevant times. The law of necessity does not require that a State take all the steps leading up to the implementation of the situation which will produce the serious harm. This would be futile, as well as a waste of resources. Each item of work is not to be treated in isolation. The works that were suspended at various points in time were works being performed solely for the purpose of constructing the Gabčíkovo-

---

52 HM, para 10.10; SC-M, para 10.39, both citing *Report of the International Law Commission on the work of its thirty-second session*, p 49, para 14.

53 SC-M, para 10.39.

54 These are described in paragraphs 1.100-1.140, above, and in HM, paras 5.30-5.105, HC-M, paras 1.56-1.156. For an elaborated explanation as to the impacts, see *Scientific Evaluation*, HC-M, vol 2, chaps 2-5 and *Scientific Rebuttal*, HR, vol 2, chaps 3-6.

55 SC-M, para 10.16.

56 The reservoir was scheduled to be filled in October 1989. Gabčíkovo was scheduled to begin operation of its first unit in 1990 and Nagymaros was scheduled for 1992.

Nagymaros Barrage System. Once serious doubts as to the environmental impacts and risks of the Barrage System became clear, it was lawful for Hungary immediately to suspend construction and to seek to resolve the difficulties. The necessity justified negotiation and investigation with a view to determining whether the Barrage System should be built, or whether in the light of any agreed modifications construction could proceed.[57] In this light, the question is not whether Hungary would face the dangers on the next day of works on a particular sector of the Project. It is whether at that time Hungary had reason to believe that serious, irreversible damage would occur for that sector of the Project if it were to be put into operation.

(a) Nagymaros

3.26. As of May 1989 a number of studies had raised concerns about peak power operation and a barrage and reservoir at Nagymaros. These have been summarised in Chapter 1.[58] In particular Hungary has demonstrated that increased bed sediment deposition would have occurred with implementation of the Original Project[59] and that this presented a serious and substantiated risk of yield reduction and water quality deterioration in the major well fields providing water to Budapest.[60]

3.27. Slovakia finds a contradiction between this claim and "the acknowledgement...that damage 'could have occurred'" or "that no detailed investigations to quantify the risks had been made" or "that the results would show up in the long term".[61] These comments show a failure to appreciate basic scientific issues. Complex problems of this kind will always be subject to levels of uncertainty: this is the nature of risk assessment. Hungary has demonstrated the substantial likelihood of damage.[62] A nation's water supply affects millions of people, including future generations.

---

57 See HM, paras 9.18-9.29.

58 See above, paragraphs 1.87-1.92. *Contra* SC-M, para 10.17. Slovakia contends that the Ecologia Reports lack credibility; SC-M, para 10.17. But Hungary has demonstrated that the concerns raised by those reports are well-founded; and at the time many other studies raised similar concerns. See HR, Annexes, vol 3, annex 10.

59 Slovakia contends that "any problems associated with dredging were in the past"; SC-M, para 10.48. Further dredging would have been necessary with the Original Project, which would have resulted in bed sediment deposition; *Scientific Evaluation*, HC-M, vol 2, chap 2.3.

60 *Scientific Evaluation*, HC-M, vol 2, chap 3.6.3.1 and 3.6.3.2.

61 SC-M, para 10.49.

62 *Scientific Evaluation*, HC-M, vol 2, chap 3.

3.28. Work had been proceeding rapidly at Nagymaros, which was due to begin operation in less than three years, with much of the large construction to begin that summer. Studies on the effects of Nagymaros had not previously been made available, and earlier studies ignored or glossed over the risks.[63] To have continued construction at Nagymaros in light of the perceived risks and dangers would have been irresponsible.

3.29. In respect of Hungary's ability to avoid the danger, Slovakia cites a May 1989 protocol deciding to extend monitoring,[64] which Hungary refused to sign. But the issue was not monitoring; it was prevention. In relation to groundwater, remediation is a technically difficult, costly, long-term process which may not even be achievable. At the stage that adverse effects may be picked up by a monitoring programme, irreversible harm may have already occurred.[65]

3.30. Hungary faced a state of necessity in 1989 precisely because of the increased awareness of these dangers and risks. This necessity might have been alleviated had Czechoslovakia agreed to engage in a comprehensive re-examination of the Project.[66] Czechoslovakia refused to engage in such a re-evaluation unless the work continued.[67] Moreover, it immediately raised the spectre of Variant C.[68] Slovakia contends that "[n]o attempt was made at Nagymaros to avert alleged dangers by any means other than abandonment and termination...",[69] but it makes no specific suggestions. The fact is that Czechoslovakia never specifically addressed Hungarian concerns relating to the Nagymaros

---

63 Statement of the President of the Hungarian Academy of Sciences concerning the Standpoint of the Ministry of Environment Protection and Water Management, 8 March 1989; HR, Annexes, vol 3, annex 55.

64 SC-M, para 10.18.

65 See *Scientific Rebuttal*, HR, vol 2, chap 2.4.

66 SC-M, para 10.19 argues that Czechoslovakia "did endeavour to respond to the expressed anxieties of Hungary on the effect of peak power operations. And it was Hungary who refused to participate in the PHARE project...." As to the PHARE Project, the application was made more than one year later in the context of a decision already taken on Variant C, and had nothing to do with Nagymaros. See HC-M, paras 2.59-2.63; HR, vol 2, Appendix 6, paras 31-35. The risks at Nagymaros were exacerbated by peak power, but were not solely caused by it: in any event, as soon as peak power was in question so was the very justification of Nagymaros. See above, paragraphs 1.85-1.90.

67 See Letter of Adamec, 31 August 1989, HM, Annexes, vol 4, annex 23. See also HM, paras 9.27-9.29.

68 Ibid, and see above, paragraph 2.21.

69 SC-M, para 10.50.

sector, and during the summer of 1989 evidenced its intention to proceed with the upstream section of the Project as quickly as possible.

3.31. Hungarian scientific studies prepared in the context of this case confirm that its concerns of the significant dangers and risks posed by Nagymaros were well founded.[70] They were concerns that a reasonable government could and should have had, and they were acted on in a responsible way. Accordingly the relevant grounds for a claim of necessity are met with respect to Hungary's suspension and abandonment of works at Nagymaros.

(b) Dunakiliti

3.32. Hungary was due to close the Danube in October 1989. The closure at Dunakiliti would have filled the Dunakiliti-Hrušov Reservoir, and produced, immediately or within a longer but finite term, the dangers and risks which concerned Hungary in that sector. Of particular concern was the immediate threat to the ecology and economy of the Szigetköz; in the longer term there was the threat to the largest potable groundwater reserve in Central Europe and specifically Hungary's water reserves.[71] The damage and risk was raised by studies at the time, and have been substantiated in subsequent work, as well as through the brief experience of Variant C.[72] As of July 1989, Hungary had no choice but to inform Czechoslovakia that the Danube closure would not occur in October.[73]

3.33. Rather than countering Hungary's evidence as to the damaging effects of the closure with evidence of its own, Slovakia argues that the suspension was "a measure designed to bring pressure upon Czechoslovakia to accede to Hungary's demands over Nagymaros".[74] It adds that "the imminent peril at Dunakiliti seems to have been

---

70 *Scientific Evaluation*, HC-M, vol 2.

71 SC-M, para 7.64 denies the risks of impoundment, but offers no evidence. As to seismicity this "was a risk [Hungary] did not really believe to exist"; SC-M, para 10.54. But see above, paragraphs 1.134-1.137 and in further detail, *Scientific Rebuttal*, HR, vol 2, chap 8.1 for an account of this very risk.

72 See above, paragraphs 1.85-1.92, 1.110-1.140, 2.50-2.81.

73 SC-M, para 10.23 criticises HM, para 9.31 for stating that the suspension at Dunakiliti was of a "minor character". This is a misreading: the passage refers to the amount of construction completed by Hungary on Dunakiliti, which was virtually finished, not to the necessity being "minor". The deferral of closure was of course nearly a deferral, unlike closure, it had no irreversible effects. This does not make it "minor", given the substantial investments of both parties.

74 SC-M, para 10.24.

discovered subsequent to 1989".[75] As demonstrated in Chapter 1, serious concerns and questions had been raised before July 1989, specifically related to the serious consequences of the Dunakiliti-Hrušov Reservoir.[76] If Hungary had closed the Danube in October 1989, Slovakia cannot deny that those negative processes would have commenced.[77] They were imminent, and they had to be avoided.

(c) Gabčíkovo

3.34. Putting Gabčíkovo into full operation would have completed the upstream section of the Original Project. This would have resulted in destruction of the alluvial floodplain of the Szigetköz/Žitný Ostrov. Low groundwater levels coupled with lack of periodic inundations would have resulted in the disappearance of flora and fauna unique to Central Europe. Agriculture, forestry and fisheries industries and the long-term soil structure would also have been at risk, as would the aquifer, the largest potable groundwater reserve in Central Europe.[78]

3.35. Once it had become clear that no serious alternatives were on offer from Czechoslovakia to address these substantiated concerns (on the contrary, that unilateral action would be taken to impose many of them on Hungary and the region), the situation of necessity which justified deferral at Dunakiliti justified suspension and ultimately abandonment of work on the upstream sector as a whole.[79]

3.36. Hungary turned over the works at Gabčíkovo to Czechoslovakia at the end of 1991. It is now clear that by that time Czechoslovakia was firmly committed to the unilateral implementation of Variant C. Prior to that time, it had also become apparent that Czechoslovakia was planning to use Hungary's work on Gabčíkovo in its implementation of Variant C. To the extent Hungary continued its construction upstream, Hungary would have undermined its resolve jointly and comprehensively to study the Project and modify the Treaty as required to make the Project viable.

3.37. Slovakia's primary line of argument is that "the preparation for Variant 'C', always provisional, did not preclude an agreed solution.

---

75 SC-M, para 10.52.

76 See above, paragraph 1.91, and see further HR, Annexes, vol 3, annex 10 for summaries of studies produced to this stage.

77 The evidence is reviewed in *Scientific Evaluation*, HC-M, vol 2, chap 3; *Scientific Rebuttal*, HR, vol 2, chap 4.

78 See above, paragraphs 1.120-1.133, and see further *Scientific Evaluation*, HC-M, vol 2, chaps 2-5; *Scientific Rebuttal*, HR, vol 2, chap 3-6.

79 See HM, paras 9.40-9.42.

Czechoslovakia was entirely willing...to have all aspects, including Variant 'C' studied scientifically".[80]

3.38. On the contrary, Czechoslovakia blocked real negotiations and refused to suspend construction while studies took place. It took steps to operate Gabčíkovo on its own as early as the autumn of 1989, and by the autumn of 1990, its lawyers were advising the Government on how to proceed "legally" with Variant C, *inter alia*, by "presenting" it as "provisional".[81]

(4) CONCLUSION

3.39. Hungary faced a state of necessity with respect to continued construction at Gabčíkovo. Had Czechoslovakia agreed to carry out a comprehensive assessment *in lieu* of unilateral construction of Variant C, perhaps the necessity could have been avoided.[82] The dangers were imminent in that if Hungary assisted in the construction of the Gabčíkovo sector without an EIA, no guarantees would have been in place to ensure against damage to the wetland, let alone to drinking water reserves. Hungary sought by every means possible to negotiate with Czechoslovakia. In the meantime, it was a reasonable and justified response to the situation not to continue with the construction.

3.40. Far from impairing Czechoslovakia's essential interests, Hungary consistently notified Czechoslovakia of its concerns – concerns equally expressed by responsible authorities in Czechoslovakia.[83] As of 1989, the state of works on the Original Project by Czechoslovakia did not preclude suspension of construction to allow a re-examination of its environmental impacts.[84] It cannot be said that a delay in the putting into operation of a barrage system impaired any essential interest. Additional expenses incurred were not such an interest, and could – as in the past – have been compensated for within the framework of the Treaty.[85]

---

80 SC-M, para 10.27.

81 See above, paragraphs 1.148, 2.31.

82 Various solutions could have been envisaged for Gabčíkovo, but Hungary was excluded from any consideration of these.

83 See, e.g., Ecological Committee of the Czechoslovak Academy of Sciences; HC-M, Annexes, vol 3, annex 43.

84 See above, paragraphs 1.93-1.99.

85 As Hungary clearly contemplated; see HM, para 9.18. Slovakia treats the Hardi Report as showing that compensation was excluded (SC-M, para 5.30), but that was a purely private document addressing quite different issues; see HR, vol 2,

SECTION B. THE ILLEGALITY OF VARIANT C

3.41. One of the Court's principal tasks is to consider the legality of the conduct of the Czech and Slovak Federal Republic in planning and implementing Variant C (Article 2(1)(b) of the Special Agreement). In Hungary's view, the implementation of Variant C was illegal under the 1977 Treaty, other applicable treaties and general international law.[86] Its continued operation by Slovakia is also illegal.[87]

SUMMARY OF HUNGARY'S ARGUMENTS ON VARIANT C

3.42. Variant C violates applicable norms of international law of both a substantive and procedural character. This illegality arises whether or not the 1977 Treaty remained in force after May 1992. Slovakia's argument for the legality of Variant C is premised solely on its being an "approximate application" of the 1977 Treaty.[88] This argument is without foundation in fact and is unsupported by any authority.[89]

3.43. Variant C was not an "approximate" (or even "inapproximate") application of the 1977 Treaty. The design, construction, operation and effects of Variant C make it a significantly different project even from the Gabčíkovo system of locks as originally provided for in the 1977 Treaty, and *a fortiori* from the Original Project as a whole. It is properly characterised as a new project, one which was not and has never been approved by Hungary.[90] Its planning commenced as early as November 1989, financial approval was granted in late 1990, and work had begun with express or tacit approval of the Government by early 1991,[91] each without Hungarian participation. Czechoslovakia and then Slovakia never notified Hungary of the full details about Variant C in accordance with applicable international norms.[92] Czechoslovakia and Slovakia violated their obligations to consult and cooperate with Hungary.[93]

Appendix 6, paras 21-22. Hungary itself expressly contemplated that compensation and an adjustment of losses would be necessary. As late as 16 May 1992, this was a reason for offering to maintain the Treaty in force: see HC-M, paras 2.72. But Variant C supervened.

86 HM, paras 7.04-7.77; HC-M, paras 6.62-6.118.

87 See HC-M, paras 6.119-6.138; and see below, paragraphs 3.161-3.165.

88 See SM, paras 7.11-7.33; SC-M, paras 11.54-11.79; and see below, paragraph 3.53.

89 HC-M, paras 6.82-6.104.

90 See above, paragraphs 2.83-2.89.

91 See above, paragraphs 2.21-2.23, 2.37-2.41.

92 See above, paragraph 2.27.

93 See above, paragraph 2.27; HC-M, para 6.65.

Variant C has never been subjected to an environmental impact assessment.[94] The unilateral diversion of the Danube under Variant C violated a specific commitment made at the time[95] and constitutes a continuing gross appropriation of a shared natural resource in violation of well-established substantive norms applicable to international watercourses.[96] Variant C was and remains incompatible with the diversion planned in the Original Project under the co-sponsorship and joint control of the two parties, in the framework of a "joint management project".[97]

3.44. Variant C violates both the 1977 Treaty itself, and a panoply of applicable rules of general international law. These include, in particular, the rule requiring the prevention of transboundary damage,[98] the general obligation to cooperate,[99] the obligation not to cause damage to the environment beyond one's border and the obligation to respect the principle of non-discrimination.[100] But at the heart of the law of non-navigational uses of international watercourses is the rule requiring the reasonable and equitable use of transboundary natural resources.[101] Slovakia's implementation of Variant C constitutes a clear violation of this rule.

(1) ILLEGALITY OF VARIANT C UNDER TREATY AND GENERAL INTERNATIONAL LAW

3.45. Slovakia seeks to evade the general legal principles governing equitable use of international watercourses by exclusive reference to the 1977 Treaty. It asserts that:

> "unless the law relating to watercourses represents a peremptory norm with which the 1977 Treaty is incompatible, the principle of pacta sunt servanda requires the rights and obligations of the parties to be tested by reference to the 1977 Treaty."[102]

---

94 See above, paragraphs 2.33, 2.49.

95 For a discussion of London Agreement see HC-M, paras 2.78-2.83; HM, Annexes, vol 3, annex 31.

96 HM, paras 7.44-7.123; HC-M, paras 6.03-6.61.

97 HM, paras 4.10-4.12; 7.06-7.16; HC-M, para 6.81.

98 HM, paras 6.56-6.69

99 HM, paras 7.06-7.16; above, paragraphs 1.42-1.44.

100 HM, paras 7.44-7.56. HC-M, paras 6.29-6.41.

101 HC-M, paras 6.18-6.61.

102 SC-M, para 11.21.

3.46. There is no legal basis for this assertion. One of the most classical rules of international law (leaving aside any reference to peremptory rules) is that there is no hierarchy among the different sources of international law.[103] As one commentator has noted:

> "Traité et coutume sont des sources indépendantes et placées sur le même rang: un traité peut abroger une coutume, une coutume peut abroger ou modifier une règle conventionnelle."[104]

3.47. A treaty may derogate from a customary rule, but equally a new customary rule developed after the entry into force of a treaty must, in the first place, be taken into account in the interpretation of treaty provisions dealing with the same subject matter.[105] In some cases this may result in the customary rule substantially modifying the content of the conventional rule.

3.48. In the present case, most of the applicable rules appeared in international law long before the 1977 Treaty was adopted. Slovakia seems to share this view.[106] But Hungary insists equally on their further development after 1977. This is particularly the case for the principle of equitable use of transboundary natural resources and the obligation not to cause damage to the environment beyond one's borders.[107] These and other rules, such as the general principle of cooperation,[108] the obligation of prior notification and consultation,[109] and the obligation to respect the principle of permanent sovereignty over natural resources,[110] already existed in 1977. But they have developed and matured in subsequent practice, and this evolution must be taken into account in interpreting and applying the treaty obligations laid down in Articles 15, 19 and 20 of the 1977 Treaty.

3.49. Account must also be taken of new developments in the international law of the environment, such as the precautionary approach,

---

103 See for instance O Schachter, "Entangled Treaty and Custom" in Y Dinstein and M Tabory (eds), *Essays in honour of Shabtai Rosenne* (1989), 717; S Sur, "Sources du droit international: la coutume", *Jurisclasseur de droit international*, fasc 13 (1989); E Roucounas, "Engagements parallèles et contradictoires" (1987/VI), 206 *Recueil des cours*, 154-165.

104 P Reuter, *Introduction au droit des traités*, PUF, 1985, p 117 (para 205).

105 HC-M, paras 6.04-6.17.

106 SC-M, para 9.51.

107 HM, paras 7.44-7.56; HC-M, paras 6.29-6.41.

108 Above, paragraphs 1.42-1.44.

109 See HM, paras 7.57-7.65; HC-M, para 6.18.

110 HM, paras 7.57-7.68, 7.83-7.87.

which develops the principle requiring prevention of damage to the environment.[111]

3.50. To argue that "[t]he principle of equitable use of shared resources is not a later peremptory norm that overrides the 1977 Treaty"[112] simply misses the point. This principle existed in 1977 and developed further in the period 1990-1992, serving to re-emphasise the clear and unambiguous prohibition on unilateral action undertaken by one State in such a way as to cause significant harm to other watercourse States.

3.51. Similar considerations apply to other rules relating to international watercourses.[113] Well-established procedures like environmental impact assessment,[114] operational concepts like "sustainable development",[115] and emerging rules like the precautionary principle[116] help define, in particular cases, the basis upon which to assess the legality of actions such as the unilateral diversion of the Danube by Czechoslovakia and its continuation by Slovakia.

3.52. It is true – as the Slovak argument implies – that the 1977 Treaty was insufficiently oriented towards environmental protection in the modern sense.[117] But the 1977 Treaty was intended to be *consistent* with environmental protection, as Articles 15, 19 and 20 show. For Slovakia's argument to succeed, it would be necessary to establish that the 1977 Treaty intended to *exclude* all general law obligations, existing or future, and it is quite impossible to extract such an interpretation from the text. Treaties should be interpreted within the matrix of international law rather than *contra legem*. If a treaty does explicitly establish a *lex specialis* which conflicts with well-established rules protecting international interests in shared resources, then that treaty should be strictly construed, so as to maintain as far as possible its consistency with general international law.[118]

3.53. By contrast the only rule of general international law Slovakia can entertain in relation to the 1977 Treaty is a rule of its own

---

111 HM, paras 6.57-6.69; see above, paragraphs 1.51-1.58.

112 SC-M, para 11.22.

113 HC-M, paras 6.18-6.41.

114 *Scientific Evaluation*, HC-M, vol 2, chaps 7.1-7.2.

115 See above, paragraphs 1.45-1.50; see *Scientific Evaluation*, HC-M, vol 2, chap 7.3.

116 HM, paras 6.57-6.69.

117 HM, paras 6.56-6.82, 7.44-7.87; HC-M, para 6.18-6.40.

118 See above, paragraphs 1.34-1.41.

invention – "approximate application". Its insistence on the point[119] implies a recognition that its conduct does not bear examination under the general law.

3.54. In the present case, there is no indication that the 1977 Treaty sought to exclude general international law rules relating to the environment, or to freeze them as they stood in 1977. There is no basis for implying from the Treaty any right of unilateral diversion, still less any permanent "appropriation" to one party of rights over specific amounts of water in contradiction to the principles of equitable utilisation under the general law.[120] If conflicts arose between the design of the Original Plan and obligations in relation to environmental protection under the Treaty and under general international law, adjustment might be required. But from late 1989 onwards, Czechoslovakia steadfastly refused Hungary's proposals to modify the Treaty and began to implement its own unilateral solution.

3.55. After May 1992, when the Treaty was terminated, the obligations bearing on Czechoslovakia and then Slovakia were to be found in customary international law, as well as in applicable treaty obligations such as the 1976 Boundary Waters Convention[121] and the 1992 Biodiversity Convention.[122] The latter Convention *expressly* overrides earlier treaty obligations "where the exercise of those rights and obligations would cause serious damage or threat to biological diversity".[123] At the level of specific implementation in November 1992, Variant C also violated the London Agreement, negotiated within the framework of mediation by the EC.[124]

---

119 SM, paras 7.20-7.24, 7.41; SC-M, paras 10.100, 11.77.

120 See above, paragraphs 1.28-1.29. *A fortiori* when the water allocation was contained not in the Treaty but in a subordinate instrument, the Joint Contractual Plan. On the relation between the two see above, paragraphs 1.14-1.17, 1.29.

121 See above, paragraphs 1.18-1.21.

122 See above, paragraphs 1.18-1.21, 2.65.

123 See HC-M, paras 4.23.

124 See HC-M, paras 2.78-2.83; HM, Annexes, vol 3, annex 31.

(2) SLOVAKIA'S DISTORTION OF HUNGARY'S POSITION WITH REGARD TO PROHIBITION OF TRANSFRONTIER DAMAGE

3.56. One of the basic norms of international law is that States must –

> "ensure that activities within their jurisdiction or control do not cause damage to the environment of other states."[125]

Slovakia retorts that this –

> "is not a serious deployment of the legal considerations relevant for the determination of the issues before the Court. In particular, it suggests the existence of an absolute prohibition of all damage; it ignores the existence of the 1977 Treaty and the true character of Variant "C" as a limited implementation of that Treaty..."[126]

3.57. This entirely mischaracterises the arguments and calls for the following comments:

(a) The principle that States should "ensure that activities within their jurisdiction or control do not cause damage to the environment of other states" is one of the most deeply rooted principles of public international law.[127] It was recognised as a principle of international law, for example, as long ago as 1927 by the German Staatsgerichsthof.[128] The principle has been affirmed, for example, by the International Law Commission in its work on the Law of Non-navigational Uses of International Watercourses,[129] and in the text of the Biodiversity Convention.[130]

(b) The principle imposes a primary obligation of due diligence, as reflected in Article 7 of the ILC's Draft Articles (1994).[131] In Hungary's view, Variant C was constructed without due diligence – in a hasty way, without prior notification of appropriate information,[132] without prior environmental impact

---

125 HM, para 7.45.

126 SC-M, para 11.28.

127 HM, paras 7.45-7.56; HC-M, paras 6.34-6.41.

128 *Donauversinking Case* (1931), *Annual Digest of Public International Law Cases*, Case No 86.

129 HC-M, paras 6.35-6.41; See above, paragraph 1.54.

130 HC-M, para 4.25.

131 HC-M, paras 6.34-6.41. See also HM, paras 7.45-7.56.

132 HM, paras 7.57-7.65. As to the extent of the information notified to Hungary, see above, paragraphs 2.21-2.22, 2.27.

assessment taking due consideration of the risks created on both sides of the border,[133] and without adequate analysis of the dangers of floods or geological risks.[134] A good indication of the lack of due diligence is the fact that Variant C was contrary to Czechoslovakia's own environmental laws *as applied to the Project*.[135]

(c) By claiming that international law permits limited (i.e., non-significant or non-serious) environmental damage,[136] Slovakia argues that Variant C does not violate the relevant standard. But as Hungary has amply demonstrated, the environmental damage *already* occasioned by Variant C exceeds by a considerable margin the threshold of "serious" or "significant" damage.[137] This damage is not in any sense "marginal" or limited in scope; it affects the ecological balance of an entire region, quite apart from the long-term but real and significant threat presented to regional drinking water reserves.[138] Such impacts go well beyond the residual or unavoidable damage which might be consistent with Principle 21 of the Stockholm Declaration and Principle 2 of the Rio Declaration.[139]

---

133 Slovakia evokes "the vast number of technical studies commissioned by Czechoslovakia before the introduction of Variant C" (SC-M, para 11.37). Not one reference is provided to these "technical studies". See *Scientific Evaluation*, HC-M, vol 2, chap 7.

134 HC-M, paras 6.133-6.38; *Scientific Evaluation*, HC-M, vol 2, chap 6.

135 HC-M, para 6.124; HM, Annexes, vol 4, annex 168; See above, paragraph 2.49.

136 SC-M, para 11.38.

137 See *Scientific Evaluation*, HC-M, vol 2, chaps 4-5; *Scientific Rebuttal*, HR, vol 2, chaps 5 and 6; HR, Annexes, vol 3, annexes 2, 5.

138 HM, paras 5.106-5.137, *Scientific Evaluation*, HC-M, vol 2, chaps 2-5. On surface and groundwater, see chap 3.

139 See PM Dupuy, "Limites matérielles des pollutions tolérées", in Gesellschaft für Umweltrecht/Société française pour le droit de l'environnement, *Colloque Saarbrücken, 1982* (E Schmidt Verlag, 1984), 27-42.

(3) SLOVAKIA'S MISCONCEPTION OF THE PRINCIPLE OF EQUITABLE USE OF TRANSBOUNDARY NATURAL RESOURCES[140]

3.58. The principle of equitable use of transboundary natural resources is central to this dispute.[141] Remarkably, Slovakia accuses Hungary of "ignor[ing] the unity of the law".[142] Hungary fully accepts the close relationship between this principle and other applicable rules[143] – hence its rejection of the view that the 1977 Treaty constitutes some kind of "environmental code", a code permitting unilateral and long-term damage to the environment!

3.59. Slovakia argues that the obligation not to cause damage to other watercourse states is based on the concept of "due diligence" and that this allows one watercourse state to create some harm for another:[144] "in the context of international watercourses the issue of damage does not exist in isolation".[145] It is true that within the context of a particular agreed use, some damages and risks may be incurred by each side in return for the overall benefits of the Project. But as recognised by Article 5(2) of the ILC Draft Articles on the Law of Non-Navigable Uses of International Watercourses,[146] an equitable use of a shared natural resource has to be negotiated and accepted by all concerned States. No "equitable" solution can be decided unilaterally by one State. It is not for Slovakia to determine whether the significant damage caused by the operation of Variant C will benefit Hungary in some other way – although there is no indication of what that may be.

---

140 On the principle of equitable utilisation in general see J Lipper, "Equitable Utilization", in A Garretson, R Haytib and C Olmstead (eds), *The Law of International Drainage Basins* (Dobbs Ferry, Oceana, 1967), 15; J Barberis, *Los recursos naturales compartidos entre estados y el derecho internacional* (Madrid, 1979).

141 HM, para 7.69 ff; HC-M, para 6.20 ff.

142 SC-M, para 11.24. Elsewhere, e.g. with its *lex specialis* argument, it is Slovakia which does so; see above, paragraphs 1.35-1.42.

143 In particular, the rule of prevention of transboundary damage, the general obligation to cooperate, the obligation not to cause damage the environment beyond one's border, and the principle of non-discrimination; HC-M, para 6.18.

144 SC-M, para 11.26.

145 SC-M, para 11.35.

146 "Watercourse States shall participate in the use, development and protection of an international watercourse in an equitable and reasonable manner. Such participation includes both the right to utilise the watercourse and the duty to cooperate in the protection and development thereof, as provided in the present articles." *Report of the International Law Commission on the Work of its 46th Session, 2 May-22 July 1994* (UN Doc A/49/10) at 218.

3.60. To reconcile its unilateral act with the principle of equitable use of transboundary natural resources, Slovakia creates the fiction of Variant C as an "approximate application" of the Original Project. This is an unsustainable argument. The elements of the Original Project had been negotiated by the Parties on the assumption of a "joint undertaking".[147] Variant C is wholly distinguishable. *First*, it was unilaterally decided on and implemented, without adequate notification and consultation. *Second*, there are substantial structural and technical differences between the two projects. Variant C cannot properly be characterised as a "soft version" of the Original Project.[148] *Third*, the operation of Variant C has created and continues to create a situation which is unbalanced and discriminatory in its effect: whereas the reservoir may supplement groundwater reserves in some areas on the Slovak side, on the Hungarian side the amount of water discharge into the main Danube and its side-arms, which is of vital importance for the entire Szigetköz region, has radically decreased.

3.61. Variant C unilaterally imposes significant damage on Hungary without any benefit whatsoever. This is clear from Slovakia's own internal legal analysis, which states that "Variant 'C' allows for the operation of the Gabčíkovo Hydropower Plant as a purely national investment, i.e., *all* income from the operation is to go to the CSFR".[149] It is difficult to see how the result might be described as an equitable utilisation of an international watercourse.

3.62. Contrary to Slovakia's position,[150] the idea of "transboundary natural resources", which forms the framework in which the principle of equitable use arises, is not incompatible with the law applicable to the permanent sovereignty over natural resources. As recognised by the Permanent Court in the *Case concerning the Territorial Jurisdiction of the International Commission of the River Oder*, the essence of the "community of interest in a navigable river" among the different watercourse states has as its essential feature "the perfect equality of all riparian States".[151] This derives from the fact that each and every riparian State preserves and maintains its sovereignty over the part of the common river which flows on its territory; this portion (as well as the dependent aquifer and groundwater) constitutes its national natural

---

147 HM, para 10.73.

148 HM, paras 5.106-5.140, and see further above, paragraphs 2.82-2.89.

149 HR, Annexes, vol 3, annex 64 (emphasis added).

150 SC-M, paras 11.48-11.53.

151 *Territorial Jurisdiction of the International Commission of the River Oder* PCIJ Ser A No 23 (1929) at 27. See HC-M, para 6.23 ff.

resource, over which it exercises "inalienable" and "permanent" rights as they are defined by UN General Assembly Resolution 1803.[152] In particular, Hungary did not, by entering into the 1977 Treaty, grant to Czechoslovakia some sort of "permanent appropriation" over the waters of the Danube.[153]

3.63. At the same time, the physical unity of the international river requires that each riparian state exercise its sovereignty over its part of the shared natural resource in such a way so as not to prejudice the equal rights of other watercourse States.[154] This is why there cannot be "any preferential privilege of any one riparian State in relation to the others", as the Permanent Court emphasised.[155] There is no basis for Slovakia's assertion that Hungary seeks to claim "preferential rights" over the shared resource of the Danube.[156] Hungary recognises that resource as shared and subject to the principle of equitable utilisation, with all the consequences that flow therefrom. This conclusion is reached notwithstanding the fact that Hungary is particularly dependent on the renewable water resources of the Danube.[157]

(4) THE ILLEGALITY OF VARIANT C IS AGGRAVATED BY ITS PERMANENT CHARACTER

3.64. The illegality of Variant C is reinforced by the fact that Phase II (at least) is intended by Slovakia as a permanent structure. It is true that Slovakia continues to "present" Variant C as "a provisional measure",[158] just as Variant C "had always been regarded by Czechoslovakia to be a reversible measure".[159] But even as initially conceived, the decision to implement Variant C was taken in the context that it was expected to bring unilateral financial returns over a period of 10 years or more.[160]

---

152 HC-M, paras 7.13-7.16.

153 See above, paragraphs 1.28-1.29.

154 See S Schwebel, *Third Report on the Non-navigational Uses of International Watercourses*, Doc A/CN.4/348, 11 December 1981, para 40 ff.

155 HC-M, paras 6.23-6.28; see also HM, paras 7.69-7.82.

156 SC-M, para 11.51.

157 HM, para 7.85.

158 SM, para 4.82

159 SC-M, para 6.17.

160 See HR, Annexes, vol 3, annex 77.

And with continued substantial Slovak investments, Variant C as it is now constructed is plainly intended as a permanent structure.[161]

3.65. If this conclusion is accepted, it undermines (a) Slovakia's claim that the Czech and Slovak Federal Republic was negotiating and acting in good faith in the implementation of the 1977 Treaty throughout the period 1989-1992, and (b) the commitment to stop construction and operation in the event that the project were shown to cause significant environmental damage.

(5) IRRELEVANCE OF SLOVAKIA'S ARGUMENT ON COUNTER-MEASURES

3.66. The two parties agree that Variant C cannot be regarded as a "counter-measure". But they do so for different reasons. According to Slovakia, "the construction of Variant 'C' entails no 'breach of international law' and Slovakia has no need to preclude wrongfulness by reliance on countermeasures".[162] Hungary maintains, on the contrary, that the implementation of Variant C violates treaty obligations and customary rules of international law: since Hungary had committed no wrongful act prior to the Czechoslovak decision to operate Variant C, this decision cannot be justified as a counter-measure.[163]

3.67. Even *if* Variant C were to be seen as a counter-measure, its consequences are wholly out of proportion to any Hungarian acts to which Czechoslovakia responded.[164]

(6) CONCLUSION

3.68. For these reasons, Variant C was unlawful in its implementation and remains unlawful in its execution. It was unlawful under the 1977 Treaty, was certainly not authorised by that Treaty, and was and remains unlawful under applicable treaty rules, and under general international law rules relating to the equitable use of international watercourses.

---

161 See above, paragraphs 2.31, 2.90-2.93; also see HC-M, paras 3.115-3.122. It should be noted that the distinction between the planned 2 "phases" of Variant C had been conceived as early as 1989.

162 SC-M, para 11.54.

163 HM, paras 7.90-7.98.

164 HM, paras 7.110-7.113.

SECTION C. THE TERMINATION OF THE 1977 TREATY

3.69. In May 1992, Hungary notified Czechoslovakia of its termination of the 1977 Treaty, relying on a number of legal grounds.[165] These are examined in Sub-section 1, below, responding to Article 2(1)(c) of the Special Agreement. However there are two further agreements relating to the termination of the 1977 Treaty which are conveniently dealt with here. They are on the one hand that Czechoslovakia's implementation of Variant C amounted to a repudiation of the 1977 Treaty (Sub-section 2), and on the other hand, that the Treaty must in any event have lapsed with the extinction of one of its parties at the end of 1992 (Sub-section 3).

SUMMARY OF HUNGARY'S ARGUMENTS ON TERMINATION

3.70. Hungary's reliance on fundamental change of circumstances, necessity, impossibility and supervening custom as lawful grounds for termination were elaborated in its Declaration and its Memorial and are all described below. Equally lawful and perhaps most important is Hungary's reliance on Czechoslovakia's material breaches of the Treaty as a ground for termination. Czechoslovakia's insistence on implementing and operating Variant C was evidenced in Chapter 2 and Appendix 6. But even if Hungary were found not to have lawfully terminated the Treaty in May 1992, the Treaty was still terminated. It was terminated either by Czechoslovakia's repudiation in October 1992 or by the disappearance of Czechoslovakia on 31 December 1992, in circumstances in which no new State succeeded as a party to the 1977 Treaty.

(1) JUSTIFICATIONS FOR TERMINATION

(a) Material breach of the Treaties of 1976 and 1977, in particular through the construction of Variant C

3.71. The most important breach relied on was the continued and active insistence by Czechoslovakia on designing, implementing and operating Variant C. The question whether Variant C violated the 1977 Treaty has already been addressed.[166] So far, Slovakia's sole argument for the consistency of Variant C with the Treaty is its argument based on "approximate application". It does not argue that Variant C was *literally*

---

165 For full analysis see HM, chapter 10; for Slovakia's responses see SC-M, paras 10.32-10.111.

166 See above, paragraphs 3.41-3.68.

consistent with the Treaty, and it does not claim any right independent of the Treaty to engage in a damaging unilateral diversion of the Danube.[167] Nor, apparently, does it contest that if Variant C was a breach of the Treaty, it was a *material* breach within the meaning of Article 60 of the Vienna Convention, which reflects customary international law. Nothing could have been more material than Variant C.

3.72. Hungary also relied, as subsidiary but still significant grounds for termination, on other breaches of the 1977 Treaty. The underlying bases for the breaches of Article 15 (water quality) and Article 19 (protection of the environment) of the 1977 Treaty are summarised in Chapter 1,[168] as is the relationship of these Treaty provisions to the corresponding Joint Contractual Plan provisions. The breaches included Czechoslovakia's failure to carry out jointly with Hungary a proper environmental impact assessment for the upstream sector. That EIA could – and in the circumstances should – have led to an adjustment of the plans for the construction of the Barrage System to ensure that water quality would not be impaired and to protect the environment. These breaches were of a continuing character; they would have continued (unless remedied) to the point of implementation of the Barrage System.

3.73. Slovakia responds with the argument that Hungary was in breach of the 1977 Treaty, not Czechoslovakia.[169] Even if Hungary were in breach – *quod non*[170] – this would not preclude it from relying on Czechoslovakia's material breaches to justify termination.[171] Hungary acted consistently with Articles 15, 19 and 20 through its acknowledgement in 1989 that numerous problems remained unresolved.[172] Hungary had sought a comprehensive review of the Original Project.[173] Czechoslovakia's failure to cooperate in resolving

---

167 See SM, para 7.21; SC-M, paras 11.01-11.79.

168 See above, paragraphs 1.12-1.17, 1.35-1.41.

169 SC-M, paras 10.96-10.97.

170 HM, paras 9.18-9.42.

171 Under Art 60 of the Vienna Convention, a State may terminate for breach even though it is itself in breach of the treaty on some other ground. It is a necessary and sufficient basis for termination of a bilateral treaty for breach that the other party has committed a material breach of the treaty. See HM, paras 10.86-10.90.

172 For concerns raised prior to and through 1989, see above, paragraphs 1.87-1.92; HR, Annexes, vol 3, annex 10.

173 No studies were carried out which could serve as the equivalent of an EIS or EIA for the Original Project; see above, paragraphs 1.64-1.84, and see further *Scientific Evaluation*, HR, vol 2, chap 7.5, with references to earlier pleadings. There was not

the numerous environmental concerns was a key component of its breaches. Overall it remained steadfast in its insistence on construction of Gabčíkovo with or without Hungarian participation.[174]

(b) Fundamental Change of Circumstances

3.74. In addition, Hungary was justified in 1992 in invoking fundamental change of circumstances as a basis for terminating the 1977 Treaty. Numerous changes had occurred, changes which had specific effects in terms of the viability of the Original Project and which cumulatively constituted a fundamental change of circumstances within the meaning of Article 62 of the Vienna Convention and of general international law.[175]

(i) The applicable legal standard

3.75. Slovakia and Hungary are in agreement that Article 62 of the Vienna Convention in substance reflects the rule of general international law by which a party can terminate a treaty because of fundamental change of circumstances.[176] Most of the conclusions which Hungary has drawn from the Court's jurisprudence, State practice and doctrine as to fundamental change of circumstances seem to be accepted by Slovakia.[177]

---

even an *attempt* to carry out an EIA for Variant C; see HR, Annexes, vol 3, annex 70.

174 See *contra* SC-M, para 10.101.

175 See further HM, paras 10.59-10.85.

176 In particular, both parties accept:

* that the existence of the circumstances should have constituted an essential basis of the consent of the parties to be bound (SC-M, makes no mention of this requirement in Article 62);
* that performance has to be "something essentially different from that originally undertaken" (SC-M, para 10.62; HM, para 10.68);
* that changes in the law can constitute a valid ground for invoking a change of circumstances under Article 62 (SC-M, para 10.63, HM, para 10.70(4));
* that relevant "elements of the Treaty are to be ascertained not just from its text but from the history of negotiations" (SC-M, para 10.67; HM, para 10.70(2)).

177 Slovakia has not disputed the following propositions:

* the circumstances in question do not have to be the motive or expressed rationale for the treaty (HM, para 10.70(2));
* changes which "imperil the existence or vital development of one of the parties" can constitute fundamental changes of circumstances" (HM, para 10.67, citing *Fisheries Jurisdiction Cases* ICJ Rep 1973, p 3, 49);

3.76. Disagreement between the parties on the relevant legal standard relates to three issues:

(1) *whether change has to be "extraordinary or of a singular character".*[178] Hungary's position is that it is not necessary to identify one single type of "extraordinary" or "singular" circumstance producing a fundamental change. Such a change can be cumulative and can result from the concurrence of a number of factors, provided that the other criteria of Article 62 are met. Slovakia has yet provided no arguments to the contrary.

(2) *whether an increase in risk can constitute a fundamental change of circumstances.*[179] Hungary's position is that the damage need not actually have occurred, and that the presence of a significant risk can be sufficient to warrant termination.[180] For example, if a dam is planned to be built in a location initially thought safe, but is later discovered to pose a substantial likelihood of serious risk to a city's water supplies, the new knowledge of risk of damage could constitute a fundamental change. Slovakia contends that there must be "proven realities".[181] If this means that the damage must have actually occurred, it is incorrect and unsupported by rules of international law which require a preventive approach to harm.

---

* the state of mind or knowledge of the parties can be a circumstance, as much as a state of "objective" fact, including changes in a parties' knowledge or understanding of the facts, e.g., as a result of scientific developments (HM, para 10.70(5));

* a State may invoke a change of circumstances, notwithstanding that some change of that kind may have been foreseen at the time of conclusion of the treaty, if the magnitude of the change was not foreseen and is fundamental in the relevant sense (HM, para 10.70(9));

* a fundamental change in the *burden* of the obligations to be performed may be sufficient; it is not necessary that the physical character of the obligations, i.e., the actual step to be performed, should have changed, and the phrase "transform the extent of the obligation still to be performed" in Art 62(1)(b) should be interpreted in this sense (HM, para 10.70(10));

* although it is for the Court to determine whether the conditions of fundamental change have been met, such a determination is not a legal prerequisite for termination on this ground; if adjustment of the situation cannot be achieved by negotiation, a State confronted with a fundamental breach is entitled to rely on it, whether or not the other party agrees (HM, para 10.53).

178 SC-M, para 10.61.

179 SC-M, para 10.64. Slovakia also argues that "no scientific evidence exists to support this hypothesis of increased risk" (SC-M, para 10.64), a contention refuted in paragraphs 1.100-1.140 and 2.44-2.81, above.

180 See HM, paras 10.26-10.31.

181 SC-M, para 10.64.

(3) *whether a State may invoke fundamental change of circumstances if its own conduct, although not the substantial cause of the change in circumstances, contributed to the change.*[182] Hungary's position is that Article 62(2)(b) only disqualifies a State from invoking a fundamental change where it can be said that the sole or essential cause of the change is the wrongful act of that State.[183] The purpose of Article 62(2)(b) is to prevent a State from relying on its own wrongful act as a justification for termination. That purpose has no application where the substantial cause of the fundamental change of circumstances is a cumulative series of changes, which were, considered together, outside the control of the State invoking the changes. By contrast, Slovakia treats each component of the change of circumstances as having to meet the criteria of fundamental change as a whole.[184] There is no warrant for this atomistic approach either in the text of Article 62 or in general international law. In the present case, the relevant changes were essentially outside of Hungary's control, and were not due to fault on its part.

(ii) The application of fundamental change of circumstances in the present case

3.77. In the period 1989-1992, there were dramatic changes in Central and Eastern Europe generally and in Hungary and Czechoslovakia specifically. These changes were wholly unforeseen in 1977. They significantly impacted on the 1977 Treaty and the Original Project, and they were cumulative upon earlier changes in the conditions for the Project (e.g., the failure of Soviet aid) which had already rendered it marginal. To summarise, relevant changed circumstances included:

* Political changes, including the fall of communism; the dissolution of the Warsaw Pact; the holding of the first free elections in 45 years; the advent of public participation in the political decision-making process, subjecting that process to public scrutiny; increase in governmental accountability to its people, and the commencement of privately owned and uncensored newspapers and radio stations.

* Economic changes, including the transition from a non-market to a market economy; the dissolution of COMECON; the end of state subsidies to failing industries, the end of guaranteed full

---

182 SC-M, para 10.73.

183 HM, para 10.80.

184 SC-M, para 10.61.

employment, and changes to a market-economy approach requiring cost-benefit analyses.

* Changes in environmental knowledge and law, furthering understanding of the relations between development projects and their environmental effects; increase in general environmental awareness, and the adoption of procedures for assessing environmental impacts.

3.78. Hungary has never suggested that any one element of these changed circumstances would be sufficient to constitute a fundamental change of circumstances in relation to the 1977 Treaty.[185] These circumstances were intricately linked with one another. The political system subsumed the economic system; in turn, the economic orientation determined the environmental priorities of the region.[186] The political, economic, and environmental circumstances of the pre-1977 period taken together were "an essential basis of the consent of the parties to be bound by the treaty". Indeed, although it is not legally necessary that the relevant changes be specified as significant in the treaty, this was in fact the case with the 1977 Treaty.

3.79. The Treaty envisaged an *economic objective*: "mutual interest in the broad utilisation of the natural resources of the Bratislava-Budapest section of the Danube River" to attain the benefits of "development of water resources, energy, transport, agriculture and other sectors of the national economy of the Contracting Parties." It also specified a *strategic* or *political objective:* strengthening "fraternal relations" and significantly contributing to "the socialist integration of the States members" of COMECON.[187]

3.80. For the 1977 Treaty to serve (1) as an economically beneficial "joint investment"[188] and (2) as a vehicle for "socialist integration" through COMECON, the Treaty was designed and expressed to be (3) "a single and indivisible operational system" to produce peak power through power plants and reservoirs located upstream and downstream on the Danube,[189] and (4) a framework treaty, calling for adjustment and

---

185 Slovakia continually implies that Hungary is relying on each component in isolation. See SC-M, paras 10.61, 10.73.

186 See HR, vol 2, Appendix 3.

187 Both objectives are expressed in the Preamble to the 1977 Treaty. See HM, paras 4.04-4.08, 10.73-10.74; HC-M, paras 1.12-1.19.

188 Art 1(1) and preambular para 1. See discussion of the substantive elements of the fundamental change of circumstances in HM, paras 10.73-10.77.

189 Art 1(1).

revision in the light of "research, exploration and planning operations".[190] In addition, it was (5) a treaty assumed to be consistent with environmental protection.[191]

3.81. By May 1992, the changes in the political, economic and environmental context in which these treaty goals and parameters could be viewed had radically transformed the extent and impact of Hungarian obligations still to be performed under the Treaty, i.e., the building of Nagymaros, downstream, and the closure of the Danube River at Dunakiliti, upstream.

(a) An economically beneficial joint investment

3.82. The GNBS was to be a joint investment which was economically beneficial through the development of flood control mechanisms, transport, energy, agriculture, forestry, and other sectors. It could only be viewed as economically beneficial in the context of the economic, political and environmental conditions prevailing in the pre-1977 period.

3.83. The economic indices at the time did not distinguish between real price changes and inflationary price changes in determining the economic viability of a project. As a result, even very bad economic investments could look favourable. Even applying the "D index" system used at the time to determine the viability of investments, the Project was not viable; it could only be justified because it was expected to have various indirect development or political benefits.[192] Indices applied in socialist economies generally favoured large projects and completion earlier rather than later.[193] Environmental costs were not factored into the economic equation at all.

3.84. The political and economic context prior to conclusion of the Treaty insulated the COMECON countries from the energy shock of the early 1970s. Consequently, there was less concern within COMECON for the relations between energy use and economic development. COMECON countries continued to emphasise the development of

---

190 Art 5(3), (4), (5).

191 Arts 5(5)(a)(5), 5(5)(b)(13), 15, 19.

192 Such benefits, often referred to as secondary benefits, are normally not included in a cost benefit analysis because developments in one place usually take resources away from another except during periods of high unemployment of labour, capital, and other resources. See Norgaard Report, HR, vol 2, Appendix 4.

193 See HR, vol 2, Appendix 4.

energy-intensive sectors and to use energy inefficiently throughout their economies until well into the 1980s.[194]

3.85. As of 1992, there had not just been "[a]dverse economic circumstances" or mere "financing difficulties" as Slovakia seeks to qualify it.[195] There was a wholesale collapse of the political and economic system which had operated throughout the region over 4 decades. In this context, the Project was an economic dinosaur. Improved navigation was of marginal significance to either country's economy.[196] Further improvements in flood control mechanisms had been made unnecessary by investments specifically targeted at flood control.[197] By contrast, losses would be suffered in the areas of agriculture, forestry, and fisheries, and there would be long-term degradation to the soil structure.[198] The destruction of the wetlands would cause substantial, though economically unquantifiable, losses. Because of the political changes, there were no longer the factors of socialist integration or strategy to add to the economic equation of the "joint investment". The "joint investment" had become an economic disaster, diplomatically described by the European Bank for Reconstruction and Development as being "of dubious economic value".[199]

3.86. For Hungary and Czechoslovakia, the dissolution of the COMECON ended their economic security. Both countries were seeking to become fully-fledged market economies, having become members of the EBRD in May 1990 and signing Association Agreements with the European Communities in December 1991 which committed them to developing their national environmental protection standards and supporting environmentally sustainable development. Neither country had access to large supplies of subsidised energy. Both were being forced to follow the steps other countries had taken in the 1970s and 1980s, which involved a move to smaller projects and increased energy efficiency.[200] These economic changes rendered the economic objective of the 1977 Treaty unobtainable.

---

194 See HR, vol 2, Appendix 4.

195 SC-M, para 10.62.

196 See above, paragraphs 1.111-1.112, 1.139.

197 See HC-M, paras 1.172-1.177 and Laczay, HC-M, Annexes, vol 4 (part 1), annex 9; see also *Scientific Evaluation*, HC-M, vol 2, chap 2.

198 See *Scientific Rebuttal*, HR, vol 2, chap 5.

199 HR, Annexes, vol 3, annex 92.

200 See HR, vol 2, Appendix 4.

(b) Socialist Integration

3.87. Socialist integration was one of the primary objectives of the 1977 Treaty and also the basis of the Treaty.[201] It had two interlinked components, one political and one economic.

3.88. Politically, there was significant Soviet involvement in the Project, including promised loans.[202] The Soviet Union was involved in the Project's planning and implementation for over 25 years (from 1954 to 1980): the details of this involvement are set out in earlier pleadings[203] and are summarised in volume 2, Appendix 3, of this Reply. The Soviet Union wished to reduce the demand for Soviet oil supplied to Eastern Europe at well below market rates under the bartering system of the COMECON. It also had a strategic interest in improving navigation and communications through a system of dams extending from Austria (the western frontier of the socialist bloc) to the Soviet Union, and the GNBS was planned to be an integral part of that system.[204]

3.89. As the most powerful country within COMECON, the Soviet Union ensured that its interests were served by COMECON programmes.[205] Its Institute, Hydroprojekt, was responsible for co-ordination on behalf of COMECON in terms of planning the Danube's utilisation. In 1971 COMECON adopted a Complex Programme for the Further Deepening and Improvement of Cooperation and the Development of Social and Economic Integration of COMECON which promoted "the construction and operation of joint ventures for the production of electric energy" and "the increase of the proportion of hydroelectric energy in the balance of fuels and energy."[206] The 1977 Treaty was specifically said to be "an integral part of the comprehensive programme for the development of socialist economic integration of the COMECON countries".[207] Czechoslovakia and Hungary requested

---

201 See above, paragraphs 1.04-1.06 for the parties' arguments on this point.

202 See HR, vol 2, Appendix 3. See also HM, paras 4.06-4.08.

203 HM, paras 3.16-3.43.

204 See HM, paras 4.06-4.08 and HC-M, para 1.19, on strategic purposes of the 1977 Treaty.

205 The 1977 Treaty was a typical COMECON treaty. For example, its payment and barter provisions were typical of COMECON treaties. See above, paragraphs 1.05, 1.06. See also HR, vol 2, Appendix 3. *Contra* SC-M, para 2.07.

206 HM, para 3.27, citing The Complex Programme of COMECON, 6 August 1971.

207 HM, Annexes, vol 4, annex 7; see also discussion above, paragraphs 1.03-1.06. The political decision to proceed with the Project was taken just weeks after COMECON's complex programmed was adopted.

Soviet loans totalling 300 million rubles.[208] Eventually, the Soviet Union agreed to give Hungary substantial aid in the form of equipment and specialist services totalling approximately 100 million rubles.[209]

3.90. By 1992, COMECON and the Warsaw Pact had both been dissolved. Soviet troops had left Czechoslovakia in May 1991 and Hungary in June 1991. None of the former communist countries, other than Czechoslovakia, expressed any strategic or economic interest in the Treaty.[210] The promised Soviet loans never materialised.[211] Both Hungary and Czechoslovakia were moving to free-market economies, subject to the full pressure of international energy markets and were being forced to use energy more efficiently.[212] The economic inefficiency of a project for one country could no longer be offset by strategic or "socialist integration" benefits.

3.91. The claim that the reference to COMECON in the preamble is a "stylistic formality"[213] and that the 1977 Treaty involved a "normal" industrial project[214] cannot be accepted. Nor is it true that COMECON involvement was merely notional. To quote a report on one of the early negotiating sessions relating to the Project:

---

208 Minutes of the Meeting of the Hungarian-Czechoslovak-Soviet Consultations in the Preparation for Realisation of the Gabčikovo-Nagymaros Barrage System, 16 January 1975; HR, Annexes, vol 3, annex 45.

209 For the Agreement between the Soviet Union and Hungary, see HM, Annexes, vol 3, annex 23. See also HM, para 4.08.

210 For example, the Soviet Union changed to world market pricing for its oil in 1990; HM, para 10.74. On strategic and economic changes see also HC-M, paras 1.178-1.189.

211 SC-M, para 10.69 argues that "the unavailability in recent years of COMECON based loans" do not constitute a "changed circumstance". But Hungary only gave that as one component of the larger changes in economic circumstances which took place in the region, and which impacted upon the Treaty's objective and basis of "socialist integration." SC-M, para 10.70 argues that the Soviet loan would have served little purpose until construction at Nagymaros occurred. But it was still relevant in terms of change to a Treaty which provided for Nagymaros.

212 See HR, vol 2, Appendix 4; see also HC-M, paras 1.190-1.203. Slovakia stresses that "[i]t cannot be said that a State may claim fundamental change of circumstances whenever it miscalculates its long-term energy requirements, or finds alternative energy sources elsewhere" (SC-M, para 10.72). Hungary is in complete agreement; it has made no such claim.

213 SC-M, para 2.06.

214 SC-M, paras 2.06-2.07.

> "The joint production of power plants is an outstanding example of economic cooperation among socialist countries. It is proof that the cooperation implemented within the framework of COMECON is efficient, because after the suspension of fruitless negotiations conducted for many years between the two countries on this issue, the relevant resolutions of COMECON provided a basis for continuing the negotiations and for arriving at a mutual understanding."[215]

(c) A single and indivisible operational system

3.92. A "single and indivisible operational system" was the primary mechanism for realising the goals of the 1977 Treaty.[216] Slovakia accepts this.[217] The Nagymaros Barrage was essential to the Original Project, politically and economically. Nagymaros furthered "socialist integration", allowing for better navigation from the western border of the socialist bloc eastwards.[218] It allowed for peak power production, both at Gabčíkovo and at Nagymaros itself. Only with Nagymaros could improved navigation be factored into the economic calculations.

3.93. As of 1992, the single and indivisible operational scheme had dissolved. Czechoslovakia was implementing Variant C and had insisted on diverting the Danube and operating Gabčíkovo unilaterally, in a manner wholly outside the scope of the 1977 Treaty.[219] Hungary had suspended construction of the barrage at Nagymaros as a result of serious concerns about environmental impact, concerns which have been fully substantiated by later work.[220] Peak power production was impossible; improved navigation could no longer be considered an economic benefit, and could in any event be achieved in other ways.[221]

---

215 Information Document for the Political Committee of the Hungarian Socialist Workers Party on the Government Committee Negotation, Prague, 6-7 October 1958; HR, Annexes, vol 3, annex 37.

216 HM, paras 4.09-4.10.

217 SC-M, paras 2.17-2.18.

218 There were no major navigational impediments in the stretch of the Danube which is now bypassed by Variant C's head and tailrace canals. See HC-M, paras 3.89-3.90 and Laczay, HC-M, Annexes, vol 4 (part 1), annex 8.

219 Slovakia finds it "significant that Hungary does not include the implementation of Variant C as a fundamentally changed circumstance". This ignores HM, paras 10.74(2), 10.77; HC-M, paras 5.47, 5.48. See above, paragraphs 2.83-2.89 on the differences between Variant C and the Original Project.

220 See *Scientific Evaluation*; HC-M, vol 2; *Scientific Rebuttal*, HR, vol 2.

221 See above, paragraphs 1.111-1.112, 1.139.

3.94. Slovakia appears to accept the Hungarian argument that, with the abandonment of Nagymaros, the single and indivisible operation scheme had dissolved. It focuses on a procedural matter, denying that Hungary can rely on "its own action in abandoning Nagymaros" as a fundamental change of circumstances.[222] But it is only if Hungary's actions were the substantial cause of the changed circumstances that it would be precluded from relying on the change.[223] Far from causing or producing the fundamental change of circumstances, Hungary's suspension of construction at Nagymaros was a necessary and proper response.[224] The essential change was the understanding that Nagymaros posed a substantial threat to bank-filtered water supplies for Budapest.[225] This threat was in no relevant sense caused by Hungary.

(d) A framework treaty, requiring revision in the light of "research, exploration and planning operations"

3.95. The nature of the 1977 Treaty was described in Chapter 1, as well as its relationship to the Joint Contractual Plan and other treaties.[226] Slovakia and Hungary both treat the 1977 Treaty as a framework treaty.[227] Hungary interprets this to mean that revision might be necessary if in the light of "research, exploration and planning operations" the original assumptions of an economically and environmentally sound integrated operational scheme turned out not to be achievable.[228] Revision could take place through formal amendment or could be effected by acts of the Plenipotentiaries appointed to address Common Operational Regulations, including in respect of protection against the pollution of surface and groundwater.[229]

3.96. By 1992 the 1977 Treaty had become for Czechoslovakia an immutable norm. In its view, the Treaty would *first* have to be implemented before thorough research and exploration of the Project

---

222 SC-M, para 10.73.

223 See above, paragraph 3.76.

224 See above, paragraphs 3.21-3.40.

225 *Scientific Evaluation*, HC-M, vol 2, chap 3.6.5.2; *Scientific Rebuttal*, HR, vol 2, chap 4.4.2.

226 See above, paragraphs 1.12-1.21 on the JCP and its subordinate role to the Treaty. See also discussion in HM, paras 4.13-4.23.

227 See SC-M, para 2.03, and HM, paras 4.03, 4.21(4).

228 Arts 5(3), 5(4) and 5(5).

229 Agreement as to the Common Operational Regulations, Bratislava, 11 October 1979, HM, Annexes, vol 3, annex 26, esp Arts 3 and 10.

could be completed.[230] At that stage, "technical fixes" could be instituted. Monitoring was proposed to "obtain objective information as to how the barrage system will influence the adjoining environment, and one can obtain data for performing any necessary measures in the future".[231] What those measures might be it steadfastly refused to say.

3.97. Although this represents the main thrust of the Slovak argument (as of the Czechoslovak position at the time), Slovakia introduces a subsidiary theme; it asserts that modification *was* possible in key respects. In particular it states that Czechoslovakia had decided on a significant modification to the discharge regime, involving a normal discharge of 350 m^3/s with periodic (weekly) inundations of at least 1300 m^3/s.[232]

3.98. The essential difficulty here is that there is no evidence in the record that this important offer was ever *communicated* to Hungary. On the contrary, the public position of Czechoslovakia was always one of adherence to the water discharge regime contained not in the 1977 Treaty itself but in the Joint Contractual Plan, perhaps with the possibility of minor modifications. Of particular significance is the idea of regular inundations of the flood plain, which are essential to maintaining the wetland ecology.[233] And the public position of Czechoslovakia at the time finds an echo in the present position of Slovakia, which refused the EC recommendations for an interim water management regime, and favours a static system of "slow-flow" water management in the side-arm system, one with very limited discharges which do nothing to reflect the dynamics of the river.[234]

(e) A treaty consistent with environmental protection

3.99. Chapter I already described the nature of the 1977 Treaty and the relation of its Articles 15, 19 and 20 to international environmental law.[235] In the pre-1977 period, concepts such as wetland conservation, bio-diversity, environmentally sustainable development, environmental impact assessments, public participation in environmental decision-

---

230 See HR, vol 2, Appendix 6, paras 36-43.

231 HR, Annexes, vol 3, annex 77.

232 See SM, paras 2.69-2.70.

233 See *Scientific Rebuttal*, HR, vol 2, chap 5.

234 See *Scientific Rebuttal*, HR, vol 2, chaps 7.2-7.7. See also above, paragraphs 2.94-2.105.

235 See above, paragraphs 1.12-1.58; see also discussion in HC-M, paras 4.20-4.24.

making, and cost-benefit analyses with environmental costs factored in were not common-place. They were virtually non-existent in Hungary and Czechoslovakia.[236] For example, in the governmental directive on the standards to be used for energy projects, it was stated that "costs for using land...do not qualify as expenses from a people's economy point of view".[237] This implied that there would be no economic calculations of a project's expected impact in terms of land degradation. The Original Project was "an engineering vision of how the Danube could be transformed into a 'civilized environment'".[238]

3.100. In the 1980s, national and international environmental protection standards (including EIA and EIS requirements) were becoming much more stringent, particularly in relation to groundwater protection. To take only one example, the UN Economic Commission to Europe, in which Hungary and Czechoslovakia participated, adopted a series of measures designed to enhance groundwater protection.[239] This culminated with the adoption by the UN/ECE of the Charter on Groundwater Management in April 1989, shortly before Hungary's suspension of construction at Nagymaros in the context of groundwater concerns.[240]

3.101. The Charter includes numerous provisions which support Hungary's approach to groundwater management and protection. Section II recognises groundwater as "a natural resource with economic and ecological value" and calls for strategies to preserve its quality which should aim at "sustainable use".[241] It supports the use of "best available technologies", "special protective measures to aquifers", and a management approach which encompasses "aquifers in their entirety" and combats "lowering of the groundwater table".[242] Impact assessment should be adopted for "all projects in any economic sector expected to affect aquifers adversely", with particular attention being given "to the

---

236 The philosophy was "[o]nce a socialist society is established over the whole of our planet, ecological crises will cease." See HR, vol 2, Appendix 3.

237 Joint Decree 3/1974 (VIII.16) of the National Planning Office and the Minister of Finance onInvestments, HR, Annexes, vol 3, annex 44. For further discussion, see Norgaard, HR, vol 2, Appendix 4.

238 Norgaard, HR, vol 2, Appendix 4.

239 See, e.g., Decision on International Cooperation on Shared Water Resources, 2 April 1992, ECE/DEC/D (XXXVIII); Decision on Cooperation in the Field of Transboundary Waters, 26 April 1986, ECE/DEC/B(41); Decision on Principles of Cooperation in the Field of Transboundary Waters, 10 April 1987, ECE/DEC/I(42).

240 21 April 1989, ECE/DEC/E(44).

241 Ibid, Section II(1).

242 Ibid, Sections III(1) and (2), VI(2) and X(4).

important role groundwater plays in the ecological system".[243] To that end, impact assessments are to be undertaken "at an early stage of project planning" and "should continue *during the construction phases*...of a project, in order to keep under review *any* adverse impacts on groundwater resources before, during and after human intervention".[244] Where aquifers are "unique, endangered or already impaired, groundwater protection strategies should carry *decisive* weight..."[245]

3.102. These developments were supplemented by growing support for detailed environmental impact assessment requirements, as evidenced by the EC's 1985 Directive,[246] the 1987 UNEP Goals and Principles of Environmental Impact Assessment,[247] and the World Bank 1989 Operational Directive on Environmental Assessment.[248]

3.103. By the end of the 1980s, it was clear that the standards of 1977 for the protection of the environment, of water quality and of biodiversity were inadequate.[249] Even construed progressively (as Hungary contends they should be[250]), Articles 15 and 19 of the 1977 Treaty were too general and urgently needed supplementation. Viewed as a *lex specialis*, unmodified by later developments (as Czechoslovakia in effect viewed them and as Slovakia now expressly argues[251]), they only showed more clearly the inadequacy of the Treaty itself. Nor was it enough to propose unspecified "environmental guarantees" to be contained in a separate instrument, while at the same time proceeding by all means to give effect to a Project which threatened the very damage those guarantees were supposed to prevent, and which did so not incidentally but as a very condition of its intended operation.[252]

3.104. The standards in question were not external impositions so far as the parties to the 1977 Treaty were concerned. *Inter alia*, as a result of their participation in UN/ECE, Czechoslovakia and Hungary were in the

---

243 21 April 1989, ECE/DEC/E(44), Section XIV(1).

244 Ibid, Section IX (emphasis added).

245 Ibid, Section XVII.

246 Council Directive (emphasis added) 85/337/EEC, OJ L 175, 5 July 1985, 40.

247 UNEP/GC/14/25 (1987); see also UN General Assembly res 42/184 (1987).

248 Operational Directive 4.00, Annex A, Environmental Assessment (1989).

249 See generally, EO Wilson, *Biological Diversity* (1988); A Gordie, *The Nature of the Environment* (3d edn, 1993), 367-368.

250 See above, paragraphs 1.34, 1.58.

251 See SC-M, para 1.39.

252 See HM, para 3.100.

process of adopting legislation for environmental protection, environmental impact assessment, public participation in environmental decision-making, and were signing or ratifying international treaties relating to the environment, such as the Convention on Biological Diversity.[253] Governments were increasingly accountable to their people for the effects of major industrial projects, especially those in the public sector with the potential to affect the natural resources of the country and the welfare of the people.

3.105. The Treaty, unmodified, required Hungary to incur serious risks to the quantity and quality of its capital's water supply and to its major drinking water reserve, and to destroy a major wetland area, an area of European significance.[254] Yet Czechoslovakia refused repeatedly to re-examine the Project as such, or to countenance any amendment to the 1977 Treaty itself.

3.106. It is significant that Slovakia does not challenge the notion that if these risks were real they could be considered to amount to a fundamental change.[255] As demonstrated in Chapter 2, they were and are real.

3.107. The law takes into account these significant changes. As a distinguished jurist and former President of the Court has written:

> "the enormous sums spent upon further scientific and technological research imply that the scene of scientific 'fact' is liable to change importantly and even suddenly...We need, therefore, a law of the environment that can change with the changes in the scientific world; otherwise it will quickly and most damagingly be enforcing outmoded science."[256]

3.108. Together with the emergence of increased understanding and norms of environmental behaviour, the international community has also recognised the relationship between environmental protection and respect for fundamental human rights.[257] Hungary has not claimed that

---

253 UN Conference on Environment and Development, Convention on Biological Diversity (Rio de Janeiro, 5 June 1992), (Arts 3, 8, 9, 10 and 14), 31 ILM 818 (1992). See discussion in HC-M, paras 4.23-4.24.

254 See above, paragraphs 1.106-1.107, 1.123, 1.127-1.130.

255 SC-M, para 10.78 only asserts that these claims "are simply not objectively verified by any of the responsible bodies." This is of course not the case, and was not the case then. See above, paragraphs 1.85-1.92, 1.100-1.140.

256 Sir Robert Jennings, Foreword to P Sands, *Principles of International Environmental Law* (1995), xiv.

257 HM, paras 10.38, 10.76.

such a relationship would "reject all development" or require "pastoral idyllism", or that the right to life is "simply a reworking of the 'right to environment'", as Slovakia suggests.[258] The relationship between human rights and the environment was invoked to express Hungary's commitment to taking into account the views of its citizens through their participation in decision-making and to ensure that the rights of future generations to a healthy environment were fully respected. That approach is one which has been endorsed by the international community, most recently at UNCED.[259] Hungary notes Slovakia's commitment "to preserve and pass on its environmental patrimony to the next generation":[260] where the parties disagree is on the impact of the Original Project (and *mutatis mutandis*, Variant C) on that patrimony. And it cannot be the case that international law requires the parties to wait until the damage is serious or irreversible.

3.109. Slovakia asserts a contradiction in Hungarian arguments, claiming that Hungary cannot on one hand contend that there was a fundamental change of circumstances and on the other hand rely as a ground for termination on the planning of Variant C.[261] But the two grounds are cumulative, and indeed complementary; by April 1992 the imminence of Variant C was itself a powerful new circumstance not contemplated by the Treaty.

3.110. Slovakia also asks why Hungary initially offered to implement the upstream sector of the Original Project (without Nagymaros) if it genuinely regarded Nagymaros as an integral part of the Treaty.[262] The simple answer is that the conduct of Czechoslovakia affected the extent to which the effects of the changed circumstances would "radically...transform the extent of obligations" still to be performed by Hungary.[263] Moreover the continuation of the upstream sector *in some form*, while it would have been a major change to the Original Project, was a possible option for consideration in the circumstances of 1989, having regard to the work already done upstream. But Czechoslovakia did not respond to Hungary's offer,[264] and at no stage countenanced the

---

258 SC-M, paras 10.113, 10.116.

259 Rio Declaration, Principle 3. Also Principle 10 (an access to information and participation in decision-making, and access to remedies).

260 SC-M, para 10.116.

261 SC-M, para 10.82.

262 SC-M, para 10.75.

263 HM, para 10.61.

264 HM, paras 3.103.

abandonment of Nagymaros.[265] It insisted on the Original Project substantially unmodified, and proceeded unilaterally to adopt that option – Variant C – which posed the greatest risks and costs both for Hungary and for the environment.

3.111. If Czechoslovakia had agreed to modify the 1977 Treaty to take into account the many changes affecting the parties, then the cumulative impact of the changes might not have been "fundamental". One of the legal effects of *rebus sic stantibus* is that it may call for the revision of a treaty so that the treaty relationship can be preserved. To the extent that the other party refuses to negotiate with a view to such a revision, then the party claiming *rebus sic stantibus* may be entitled to terminate the treaty. If the party *does* negotiate, but fails to reach an agreement, then both parties are bound to settle their dispute in accordance with international law, through, for example, reference to an international tribunal, which can determine the validity of the claim of *rebus sic stantibus*. If the other party ignores or rejects the offer to refer the dispute to an international authority, the State invoking the doctrine will have a right to terminate the treaty.[266]

3.112. In the present case, Czechoslovakia negotiated initially (May-July 1989), but as time passed, it became increasingly single-minded in the implementation of Variant C.[267] Hungary requested that Czechoslovakia submit the dispute to an impartial tribunal several times, but Czechoslovakia refused, preferring to continue implementation of Variant C.[268] Czechoslovakia's conduct gave Hungary no choice but to terminate the Treaty on the grounds, *inter alia*, of fundamentally changed circumstances. And this is clear from the actual history of the dispute; at the very last, Hungary was prepared to maintain the Treaty in force, with all the consequences that entailed, provided only that work on Variant C would be suspended pending negotiations.[269]

---

265 HM, paras 3.99-3.100; SC-M, para 5.16.

266 On the legal requirements for fundamental change, see HM, paras 10.59-10.85.

267 See the history of the implementation of Variant C, paragraphs 2.18-2.43, above.

268 See HR, vol 2, Appendix 6, para 49, and see further HC-M, paras 2.84-2.87.

269 See Note of Minister Mádl, May 1992, HC-M, vol 3, annex 54; discussed in HC-M, para 2.72.

(iii) Conclusion

3.113. For these reasons, all the conditions for reliance on fundamental change of circumstances existed at the time of the Hungarian Declaration of May 1992.

(c) State of necessity

3.114. Hungary relied on the ground of necessity in its suspension of construction of works at Nagymaros, Dunakiliti and eventually Gabčíkovo, and also as one if its justifications for termination of the 1977 Treaty. The legal requirements for necessity have been summarised already.[270] Czechoslovak actions resulted in a continued state of necessity justifying Hungarian suspension of works initially at Nagymaros and Dunakiliti, and later at Gabčíkovo. As Czechoslovakia continued with its implementation of Variant C, a temporary state of necessity eventually became permanent, justifying termination of the 1977 Treaty.

3.115. No state is under an obligation to expose its present and future citizens to significant risk of health and environmental damage which could fundamentally undermine its vital interests.[271] This is the essential point of the invocation of necessity as a justification for termination of the 1977 Treaty.

3.116. The scientific studies prior to 1989 when Hungary first suspended construction of works at Nagymaros, and those performed during the suspension of construction (1989 to 1992) were sufficiently clear to lead a "well governed State" to the conclusion that it could not expose the health and livelihood of its present and future population to major risks, the creation of which were directly related to the implementation of the Original Project. Studies attached to the Hungarian Memorial and Counter-Memorial have evidenced the high degree of probability of the long-term deterioration of water quality and water quantity in the concerned regions.[272] Studies have also demonstrated the serious impacts on the wetlands of the Szigetköz, one

---

270 See HM, paras 10.06-10.16, and further above, paragraphs 3.21-3.26.

271 See HM, para 10.09.

272 See Liebe, 1994, in HM, Appendix 3, 388 ff; *Scientific Evaluation*, HC-M, vol 2, chap 3.5 on groundwater quality, 94 ff.

of the few remaining wetland areas in Europe and a valuable inland delta region.[273]

3.117. Hungary well understands the strict limits of international law in allowing pleas of necessity.[274] Nonetheless, under the special circumstances of this case, it *was* necessary for Hungary to suspend construction of works at Nagymaros, Dunakiliti and Gabčikovo initially and later to terminate the 1977 Treaty. Czechoslovakia had remained inflexible in addressing Hungarian concerns, had refused to negotiate a solution, and had refused to allow third parties to examine fully the concerns unless construction continued at full pace.

3.118. Slovakia responds by arguing, as to the law, that necessity is not available in relation to treaty obligations, and as to the facts, that no situation of necessity arose. These arguments have already been fully dealt with.[275]

(d) Impossibility of performance

3.119. Hungary's position is that it could not "be obliged to fulfil a practically impossible task, namely to construct a barrage system on its own territory that would cause irreparable environmental damages".[276] By May 1992, the object essential to the Treaty – an environmentally acceptable barrage system – had permanently disappeared,[277] and the Treaty had thus become impossible to perform. The permanent disappearance of the object was not caused by any breach of treaty on the part of Hungary.

3.120. Hungary interprets the Vienna Convention's Article 61 definition of impossibility – "disappearance or destruction of an object indispensable for the execution of the treaty" – as not confined to the disappearance of "a physical object."[278] Slovakia disagrees, arguing that

---

273 See summary of likely effects of the Original Project in HC-M, paras 1.50-1.156. For more detailed description, see HC-M, *Scientific Evaluation*, vol 2, chap 4.4.

274 HM, para 10.06.

275 On the relationship between necessity and the law of treaties see above, paragraphs 3.07-3.14. On the application of the doctrine of necessity to the facts of the present case see above, paragraphs 3.21-3.40.

276 Declaration of Termination, Part III, para 2, 16 May 1992; HM, Annexes, vol 4, annex 82. See description of impossibility as it applies in this case in HM, paras 10.41-10.58.

277 See discussion above, in paragraphs 1.85-1.92, 1.100-1.140, 2.44-2.81.

278 HM, paras 10.49-10.50.

the Vienna Convention was intended to be limited to disappearance of "a physical object."[279] Slovakia misinterprets this provision.

3.121. Earlier attempts at codifying the law of treaties had specifically required that a party's performance would become impossible either because of "the complete and permanent disappearance or destruction of the physical subject-matter of the rights and obligations contained in the treaty" or because of the "disappearance of a legal state of affairs which was the *raison d'être* of those rights and obligations."[280] The ILC eventually deleted the word "physical", on the basis that impossibility could be invoked when it resulted from "the total and permanent disappearance or destruction of the *subject-matter of the rights and obligations* contained in the treaty".[281] The deletion of the word "physical" was noted with approval and it was specifically observed "that the impossibility may be either physical or juridical".[282]

3.122. Slovakia argues that the impossibility argument is really one of (i) fundamental change of circumstances, (ii) *force majeure* or necessity, or (iii) error.[283] The first two grounds are dealt with elsewhere in this Chapter,[284] and were relied on as parallel grounds justifying the termination of the Treaty. Impossibility of performance and fundamental change of circumstances are distinct grounds for termination. The same factual situation could give rise to an overlap of the two grounds, as acknowledged by the ILC.[285] Similarly, there are factual situations where cases of temporary impossibility could be regarded as *force majeure*, excusing non-performance of a treaty. But if temporary impossibility were to become permanent, the Treaty in question must be able to be terminated by a party whose conduct is not the cause of the impossibility, in the sense already explained.[286]

---

279 SC-M, para 10.87.

280 See Waldock Report II, Art 21(2)(a) and commentary to Art 21(2)(b), *ILC Ybk* 1963/2, 78-9.

281 *ILC Ybk* 1963/2, at 206 (emphasis added), draft art 43(1).

282 Statement of Portugal, *ILC Ybk* 1966/2, 37. Waldock specifically observed that the wording could apply to "the disappearance both of the physical subject-matter and of such metaphysical elements as a legal regime." *ILC Ybk* 1963/1, 248.

283 SC-M, paras 10.83-10.90.

284 See above, paragraphs 3.114-3.118, 3.74-3.113.

285 *ILC Ybk*, 1966/2, 256, para 1.

286 See above, paragraph 3.76.

3.123. As to error, Slovakia notes that this would invalidate the treaty, rather than allow for termination.[287] If the Court, however, were to hold that the appropriate rubric in situations where the availability of new scientific knowledge or understanding renders a project unsafe, then Hungary should be equally entitled to rely on error.[288] Hungary had a reasonable belief in May 1989 that proceeding with the Project without further scientific knowledge would engender serious risks. Its belief was reinforced as changes in the political system occurred which permitted free discussion of the issues and a re-examination of the assumptions underlying the Project. That new and increasing scientific awareness of earlier, as well as more recent, studies highlighting the dangers of proceeding with the Project qualifies as grounds for relying on error.

3.124. Gaps in scientific knowledge and understanding of the Original Project in 1977 led the parties to infer that the Project was environmentally sound when it was not, and thus formed an essential basis of their consent to be bound. Hungary was not negligent in being unaware of the error at that time; it may be noted that Czechoslovakia was also unaware of the dangers.

(e) Conflict with subsequent obligations under general international law

3.125. Article 42 of the Vienna Convention does not preclude the application of grounds of treaty termination not included in the Convention but recognised under customary law.[289] One of the most classical rules of international law is that – aside from peremptory norms – there is no hierarchy among the different sources of international law. The Convention itself affirms in its preamble that "the rules of customary international law will continue to govern questions not regulated by the provisions of the present Convention."[290]

3.126. The ILC had earlier rejected a provision dealing with the effect on a treaty of emergence of a new rule of customary law.[291] This

---

287 SC-M, para 10.85.

288 See HM, para 10.53. Before an error is discovered and while the parties are implementing a treaty in good faith, it would be artificial to rely on the notion of "invalidity" and to ignore the legal effects of performance. Even invalidity has to be invoked, and this could not be done before the parties had notice of the error.

289 For discussion, see N Kontou, *The Termination and Revision of Treaties in the Light of New Customary International Law* (Clarendon Press, Oxford, 1994).

290 Vienna Convention on the Law of Treaties, preambular para 8.

291 *ILC Ybk* 1963/II,163.

provision generally received favourable comments from government. Only two objected to the principle, Greece[292] and the United Kingdom.[293] The general view was that this provision flowed naturally from the character of custom as an autonomous source of law: new custom, in part itself conventional in origin, could modify conventional rights, terminate them, or replace them with other rights and obligations.[294] In view of the differences of opinion, it was decided to leave the matter to be determined under general international law.[295]

3.127. Thus the ILC decided not to include a sub-article on the point, not because supervening custom could not modify a prior incompatible treaty, but because this was a matter falling outside the scope of the Convention.[296] State practice offers a number of examples of treaty termination or revision on account of incompatibility with supervening custom.[297] On some occasions the treaty was expressly abrogated, revised, or replaced by a new treaty; on others it was brought to an end or modified by subsequent practice of the parties.[298] The possibility of termination or revision on this ground is also supported in the jurisprudence.[299]

3.128. As indicated in Chapter 1,[300] customary international law relating to the environment has developed extensively since the 1970s. In particular, major developments have occurred in the law governing environmental impact assessments, the protection of freshwater resources, and the conservation of biological diversity, notably in the years 1990-1992. To the extent that the 1977 Treaty excluded these developments – that is to say, to the extent that it *was* a *lex specialis*[301] – the Court should hold that the relevant rules of international law have

---

292 Greece, (1966) 20 GAOR 6th Committee, 845th mtg, 38, para 41.

293 *ILC Ybk* 1966/II, 345.

294 Countries in favour included US (ibid, 361), Israel (ibid, 300), Turkey (ibid, 342), Yugoslavia (ibid, 361).

295 See e.g., Waldock, *ILC Ybk* 1966/II, 236, para 3 and the US comment, ibid, 358.

296 Kontou, 139.

297 See Kontou, 145. See also P Reuter, *Introduction au droit des traités* (PUF, 1985), 117, para 205.

298 See, examples in Kontou 73-107, e.g., the Extradition regime in the East Indies and the Regime of the River Niger.

299 See *Fisheries Jurisdiction Case* (UK v. Iceland) (*First Phase*) ICJ Rep 1974, p 3; *La Bretagne Arbitration* (1986), 90 *RGDIP* 713.

300 Above, paragraphs 1.34-1.58. See also HM, paras 5.65-5.82; HC-M, paras 4.20-4.39. On this point Slovakia appears to agree; SC-M, paras 9.51-9.66, 9.75.

301 As Slovakia suggests; SC-M, para 1.39.

displaced inconsistent provisions of the 1977 Treaty. Confronted with this possibility, however, the better view is that certain provisions of the 1977 Treaty, and especially Articles 15 and 19, were open to interpretation in the light of the developments in international law, with consequences for the termination of the Treaty which have already been analysed.[302]

(2) REPUDIATION OF THE TREATY THROUGH THE IMPLEMENTATION AND OPERATION OF VARIANT C

3.129. In relation to the provisions of the 1977 Treaty as a whole, Czechoslovakia's conduct in implementing Variant C amounted to a repudiation of the 1977 Treaty. Czechoslovakia engaged in a "deliberate and persistent violation of obligations which destroy[ed] the very object and purpose of that relationship".[303] Thus, even if the Treaty did not disappear in May 1992, Czechoslovakia clearly repudiated the Treaty through its unilateral implementation of Variant C by November 1992.

3.130. In order to decide whether Czechoslovakia repudiated the Treaty "it would still be necessary to examine the treaties in order to see whether, in relation to their provisions as a whole...[Czechoslovakia's] conduct must be held to constitute such a repudiation."[304] For reasons already explained, Variant C is radically different from the obligations under the 1977 Treaty.[305] A clearer example of repudiation would be difficult to find.

3.131. Slovakia's primary response is that there is a contradiction in Hungary's arguments: Hungary cannot, it suggests, argue both (1) that "the framework treaty...had become, according to Czechoslovakia, an immutable norm" and (2) that Czechoslovakia had repudiated the Treaty.[306] But the arguments are perfectly consistent. Until May 1992 when Hungary finally had no choice but to terminate the 1977 Treaty, Czechoslovakia took the position that either the 1977 Treaty should be implemented in its entirety and without any significant modification of the discharge regime, or Variant C would be implemented

---

302 See above, paragraphs 1.35-1.41, and see further HM, paras 10.91-10.96.

303 Cf *Namibia Advisory Opinion* ICJ Rep 1971, p 16 at 47.

304 *Jurisdiction of the ICAO Council* ICJ Rep 1972, p 46 at 67.

305 See above, paragraphs 2.82-2.93.

306 See SC-M, para 10.108 citing HM, para 10.74(4).

unilaterally.[307] After Hungary terminated, Czechoslovakia completed its implementation of Variant C, effectively repudiating the 1977 Treaty.

3.132. There are indications that a legal analysis similar to that of Hungary was current on the Czechoslovak side: it was advised to present Variant C as a "temporary" solution, on the basis, apparently, that anything else "could prevent the renewed implementation of the Treaty".[308] But international law does not require *verbal* repudiation of a treaty; it is sufficient that the State concerned acts in such a way as persistently to contradict the Treaty. And that was certainly the case with Variant C, notwithstanding the repeated invocation of such labels as "temporary" and "provisional".[309]

(3) ISSUES OF STATE SUCCESSION

3.133. The parties are in straightforward disagreement on the issues of treaty succession in the present case. These issues only arise on the assumption that the 1977 Treaty survived as a bilateral treaty in force between Hungary and Czechoslovakia until 31 December 1992. This is not the case, for the reasons given in the preceding section. The argument about succession is thus subsidiary and alternative.

3.134. On the assumption, however, that the 1977 Treaty survived termination by one party and effective and damaging repudiation by the other, Hungary denies that it survived the dissolution of Czechoslovakia, one of its two parties. According to Hungary, the 1977 Treaty was neither a boundary treaty nor a "localized" treaty in the relevant sense (a treaty considered objectively as attaching to territory). There is no rule of international law which provides for automatic succession to bilateral treaties on the disappearance of a party. When succession to bilateral treaties occurs, this is by consent of the parties. Such consent may take the form, for example, of novation, or a declaration of succession accepted tacitly or expressly by the other party, or an exchange of letters continuing particular treaties in force. Whatever technique is adopted, the essential requirement is the consent or acquiescence of *both* parties. Hungary has never accepted that the 1977 Treaty has been in force between itself and Slovakia, and in particular has never accepted any

---

307 See Note of Minister Mádl, 16 May 1992; HC-M, Annexes, vol 3, annex 54.

308 See HR, Annexes, vol 3, annex 64. The opinion refers to Article 72 of the Vienna Convention, which uses the term "acts tending to obstruct the resumption of the operation of the treaty". Variant C was certainly such an act. See also above, paragraphs 2.31-2.32, 2.91.

309 On the question whether Variant C is in truth "temporary" or "provisional" see further above, paragraphs 2.90-2.93, 3.64-3.65.

"conditional" or "hypothetical" succession by Slovakia to that Treaty. In the case of bilateral treaties, the law of state succession exists in order to facilitate continued friendly relations between the parties, not to foist on them a treaty which was a source of continuing dispute and discord.[310]

3.135. Slovakia expresses "astonishment and perplexity" at the "to say the least, unexpected" state succession argument.[311] According to it the 1977 Treaty is, if not a boundary treaty,[312] at least a localised treaty considered as attaching to territory.[313] Alternatively, it relies on a rule of international law (which would correspond to Article 34 of the Vienna Convention on Succession of States in respect of Treaties of 1978[314]) imposing on a new State and other States alike the bilateral treaties of a predecessor.[315]

3.136. It is as well to deal first with the issue of "astonishment and perplexity". In fact the disagreement about succession had already emerged in diplomatic exchanges between the parties, and was well known to both.[316] An earlier draft of the Special Agreement incorporated Slovak observations under which Slovakia would have been expressly recognised "as the successor to the Government of the CSFR", in respect to the 1977 Treaty.[317] Hungary was not prepared to accept this position, and the formula eventually adopted in paragraphs 1 and 2 of the Preamble expressly distinguishes between the 1977 Treaty itself and "rights and obligations relating to the...Project". As explained in its Memorial, Hungary accepts that there are rights and obligations relating to the Project, for example, continuing property rights as a consequence of Article 8 of the 1977 Treaty.[318] The language of the Special Agreement reflects this position, but provides no support for the Slovak thesis of *ipso jure* continuity of the 1977 Treaty as such. The reference

---

310 See HM, paras 10.107-10.120.

311 SC-M, para 1.34.

312 SC-M, paras 2.38-2.44.

313 SC-M, paras 2.35-2.38, 2.45-2.56, 3.25-3.39.

314 For text see (1978), 72 *AJIL* 971.

315 SC-M, paras 3.05-3.24, 3.40-3.51.

316 See HM, paras 10.108, 10.118-10.119. The Slovak note of 15 December 1993 attached a list of treaties, with a list of suggestions from relevant ministries: see below, paragraph 3.156. Included in the list is the 1977 Treaty, with the annotation "The Ministry of Agriculture proposes to leave it unchanged." What the position of other Slovak ministries may have been was not stated. See HR, Annexes, vol 3, annex 96.

317 See HR, Annexes, vol 3, annex 94.

318 See HM, paras 6.05-6.06, 10.108-10.109, 11.12.

to "astonishment and perplexity" in Slovakia's Counter-Memorial is another example of its tendency to argue by epithet – or, in this context, epithets.

(a) The 1977 Treaty is not a boundary treaty, or a treaty relating to the regime of a boundary

3.137. Turning to the substance, Slovakia infers that the 1977 Treaty is automatically succeeded to as a boundary treaty: "the essential boundary character of Article 22, even if not of the Treaty as a whole, is clear".[319] The reason is that Article 22, by providing that the boundary would remain unchanged, "implicitly but necessarily referred back to the relevant treaties, and this constitutes one of the possible ways of delimiting a boundary".[320]

3.138. Hungary has traced the history of the 1977 Treaty, showing that there was a deliberate decision to separate the Project from the international boundary.[321] Under Article 22(1)(a) of the Treaty, the international boundary "shall remain unchanged". The very minor boundary adjustment required once the Original Project had been implemented was to be the subject of a separate treaty. This treaty was never concluded.[322]

3.139. Slovakia suggests that even a treaty which *implicitly* confirms a boundary is automatically succeeded to under the international law rule relating to boundary treaties.[323] On this argument, the 1995 Hungarian-Slovak Treaty on Good-neighbourly Relations and Friendly Cooperation is apparently a boundary treaty, since it contains a provision affirming "the inviolability of their common state border and each other's territorial integrity".[324]

3.140. Article 11 of the 1978 Vienna Convention on State Succession with respect to Treaties provides that:

---

319 SC-M, para 2.44.

320 SC-M, para 2.40.

321 HM, paras 4.39, 10.110.

322 1977 Treaty, Art 22(2); HM, paras 7.30-7.31.

323 SC-M, para 2.40, citing *Territorial Dispute (Libyan Arab Jamahiriya/Chad)* ICJ Rep 1994, p 3.

324 Treaty between the Republic of Hungary and the Slovak Republic on Good-neighbourly Relations and Friendly Co-operation, Paris, 19 March 1995, Art 3(1); HR, Annexes, vol 3, annex 23.

"A succession of States does not as such affect

(a) a boundary established by a treaty; or

(b) obligations and rights established by a treaty and relating to the regime of a boundary."

A treaty establishes a boundary, within the meaning of Article 11 and general international law, if the treaty has operative legal effect as a treaty in establishing the boundary.[325] The separate agreement envisaged by Article 22(2) of the 1977 Treaty would have been a boundary treaty for this purpose. But it is strange to regard the 1977 Treaty itself as a boundary treaty, merely because it provided that the boundary was to remain unchanged. That is the legal effect of most treaties!

3.141. In any event, Article 11 of the 1978 Vienna Convention is deliberately framed so as to relate to the boundary itself, rather than the treaty as a legal instrument. It does not say that a treaty which contains provisions which establish a boundary is succeeded to (including those provisions which are unrelated to the boundary). On the contrary, its formulation is negative ("does not...affect a boundary"), and this is underlined by the addition of the words "as such".[326] Even if Article 22 of the 1977 Treaty "established" a boundary, this would be irrelevant to the present dispute. Slovakia's claims relate to provisions of the Treaty which, quite deliberately, were dissociated from the boundary – the boundary itself remaining "unchanged".

3.142. It should be noted that Slovakia does not rely in this context on Article 11 paragraph (b) of the 1978 Convention, and rightly not. Far from relating to the regime of a boundary, the provisions of the 1977 Treaty are dissociated from the boundary.

---

325 Of course a boundary treaty might be declaratory, e.g., it might affirm a boundary already existing under general international law. Or it might establish as a boundary one of several lines in dispute. In either case it would still add to the general international law position the security of a treaty title. This was the position, as the Court held, with Art 3 of the Franco-Libyan Treaty of 1955; *Territorial Dispute (Libyan Arab Jamahiriya/Chad)*, ICJ Rep 1994, p 3. Faced with Art 3 of the 1955 Treaty, the Court had no need to analyse the previous diplomatic history of the boundary, or the exact legal effect of earlier treaties. By contrast it was not the purpose of the 1977 Treaty to affect the boundary at all, and Art 22 simply made this clear.

326 See *ILC Ybk* 1974/2(1), 201-2 (§ 20), referring to "the purely negative character of the rule". See also Vienna Convention on the Law of Treaties 1969, Art 62(2)(a).

(b) The 1977 Treaty was not "considered as attaching to territory"

3.143. Slovakia's principal argument for succession is that the 1977 Treaty created a "territorial regime" of the kind envisaged by Article 12 of the 1978 Vienna Convention, and that it was accordingly automatically succeeded to by Slovakia.[327] Article 12(1) provides in part as follows:

> "A succession of States does not as such affect
>
> (a) obligations relating to the use of any territory, or to restrictions upon its use, established by a treaty for the benefit of any territory of a foreign State and considered as attaching to the territories in question;
>
> (b) rights established by a treaty for the benefit of any territory and relating to the use, or to restrictions upon the use, of any territory of a foreign State and considered as attaching to the territories in question."

3.144. There is some authority under general international law for the category of "territorial treaty" or territorial regime, having a permanent or semi-permanent character. In the context of major multilateral settlements, the underlying general interest is sometimes treated as the basis for the permanent character of a regime, as with the neutrality of the Aaland Islands,[328] or the general right to navigate an international river or canal, or the international interest in the mandate and trusteeship systems.[329] These issues do not arise here. In particular, as to navigation, the rights of third States to navigate along that part of the Danube affected by the Project derive from the 1948 Danube Convention, which was recognised but not superseded by Article 18 of the 1977 Treaty.[330]

3.145. The present case concerns a bilateral investment scheme of interest to the two parties.[331] Here the analogy is that of dominant and servient tenements in Roman law, or easements in common law systems. In fact there is little authority for objective or territorial regimes on a

---

327 SC-M, paras 2.35-2.38, 2.45-2.56, 3.25-3.39.

328 LNOJ Spec Supp No 3 (1920).

329 Cf *South West Africa (Status) Opinion* ICJ Rep 1950, p 128 at 153 (Lord McNair).

330 See HM, paras 4.41-4.47.

331 Following the dissolution of Czechoslovakia it evidently ceased to be of interest to the Czech Republic: see HM, para 10.108 and Annexes, vol 4, annex 117.

merely bilateral basis.[332] But in any event, international law has always distinguished between the grant of a territorial right or regime, on the one hand, and treaty provisions for continuing cooperation between the parties in a matter of common interest, on the other hand.[333] For a bilateral servitude or territorial regime to be created, a number of special features have to be shown: as a minimum, a clear intention to create a territorial right independent of the treaty, a clear and specific content to the right, and a clear nexus between the right and a territory. There has thus always been a strong presumption against the creation of a "real right" or regime of a bilateral character.[334] And that presumption has been powerfully enforced in modern international law in the context of the exploitation of natural resources and of measures affecting the environment.[335]

3.146. In the present case, the question of a bilateral "territorial regime" simply does not arise, and this for at least three reasons.

3.147. *First and foremost*, there is no indication whatever in the 1977 Treaty or in its *travaux* of an intention to create an objective regime.[336] The Treaty provided for a complex industrial project, to be jointly executed and to remain throughout under joint control, in respect of a shared natural resource. It imposed obligations of a continuing character, and envisaged continued modification and adjustment of those obligations in the light of changing circumstances. There is simply no foundation for the view that by the 1977 Treaty Hungary alienated rights over the water of the Danube, or for that matter the environment of the Szigetköz, by agreeing to enter into the Project.[337] There is no evidence that either Party regarded the Treaty as a "regime" in the relevant sense,

---

332 As the ILC itself noted, "the evidence does not...suggest that this category should embrace a very wide range of so-called territorial treaties": *ILC Ybk* 1974/2(1), 46 (§ 35).

333 This distinction goes back as far as Vattel, *Le Droit des Gens* (1758) Bk II, chap 13 (§ 203).

334 Cf *North Atlantic Coast Fisheries Arbitration* (1910), 11 RIAA 167, 183.

335 Cf Vienna Convention, Art 13: "Nothing in the present Convention shall affect the principles of international law affirming the permanent sovereignty of every people and every State over its natural wealth and resources." See also D P O'Connell's comment on "economic servitudes" (of which the 1977 Treaty, on the Slovak view, would be one): "since their rationale is always a variable economic environment, it is very doubtful indeed if real rights are ever intended to be created..."; "A Reconsideration of the Doctrine of International Servitudes" (1952), 30 *Can Bar Rev* 807 at 810.

336 See above, paragraphs 1.23-1.25.

337 See above, paragraphs 1.28-1.29.

one "considered as attaching to territory". It is true that it *affected* territory – to a much greater extent than the Parties anticipated at the time. But all bilateral treaties are territorial in some sense, and all treaties providing for the construction of industrial projects, whether on land or water, implicate particular territory. If that was sufficient to constitute a "regime", the presumption of a state's continuing sovereignty over its natural resources would be reversed, if not destroyed. As Sir Robert Jennings has remarked, "all treaties likely to come into question affect territory; and to think of those directly concerned with soil and water as being in a different category is merely to exhibit a naive literal mindedness".[338]

3.148. The same conclusion follows from Article 12 of the Vienna Convention of 1978. Article 12 only applies to regimes "considered as attaching to territory". Slovakia offers no hint as to the meaning of this phrase, focusing instead on the fact that the 1977 Treaty related to the territory of the two States parties.[339] But Article 12 clearly imposes the additional requirement that the regime in question must be "considered as attaching to territory". In the ILC's words, "there must in short be something in the nature of a territorial regime".[340] That distinct and additional requirement is not met in the case of the 1977 Treaty, for the reasons given in the previous paragraph.

3.149. The *second* reason why the 1977 Treaty did not constitute or create a territorial or dispositive regime is that, properly understood, no treaty *as such* does so. It is rather the *execution* of a treaty, in circumstances where it comes to be recognised by the parties and by other States as having some dispositive effect, which creates a regime. This was the conclusion the ILC came to in its work on the law of treaties; an earlier proposal to deal with "dispositive" treaties by way of an exception to the *pacta tertiis* rule was dropped, on the basis that treaties as such never create rights or duties for other States except on the basis of consent: "the objective regime resulted rather from the execution of the treaty and the grafting upon the treaty of an international custom".[341] Similarly, the ILC in its work on state succession with respect to treaties dealt with territorial treaties in a negative way, emphasising that it is the *execution* of the treaty in accordance with its

---

338 RY Jennings, "The Commonwealth and State Succession" in RR Wilson (ed), *International and Comparative Law of the Commonwealth* (Duke University Press, Durham, 1968), 27 at 31.

339 SC-M, paras 3.37-3.38.

340 *ILC Ybk* 1974/2(1), 46 (§35).

341 *ILC Ybk* 1974/2(1), 45 (§30). In proposing Art 12 of the 1978 Convention, the ILC adopted the same approach: ibid, 47 (§36).

terms which may, in certain circumstances, have a dispositive element. As the ILC noted in its Commentary:

> "there must be attachment both of the obligation and the right to a particular territory as such rather than to the burdened State as such or to the beneficiary State as such. In adding the words 'and considered as attaching to territory', the Commission intended not only to underline this point but also to indicate the relevance of the dispositive element, the establishment of the regime *through the execution of the treaty*."[342]

This is why Article 12 does not attribute dispositive effect to the treaty *as such*; a succession of states does not affect certain obligations considered as attaching to territory, but neither does it give any new or additional effect to treaty provisions.

3.150. For the present purposes, the point is quite simply that the "joint investment" which the parties originally intended to create under the 1977 Treaty was never implemented; the Treaty was never executed. Instead, a distinct and unilateral scheme was implemented under sole Slovak control and on what it has always proclaimed to be a "temporary" and provisional basis.[343] And yet this is said to constitute an intangible "regime"!

3.151. *Thirdly*, even if the 1977 Treaty could be interpreted as having been intended to establish an "objective" regime, this would be strictly limited to the character and parameters of the Project *as envisaged by the Treaty itself*. The manifest differences between the Original Project and Variant C have already been emphasised.[344] If the 1977 Treaty constituted a bilateral "regime", there was no room for any approximate application of that "regime" by one party acting unilaterally.

(c) There is no rule of general continuity in the case of succession to bilateral treaties

3.152. Finally, Slovakia relies on Article 34(1) of the Vienna Convention of 1978 as establishing a general rule of succession to treaties in the case of dismemberment or separation.[345] The point has

---

342 *ILC Ybk* 1974/2(1), 47 (§38) (emphasis added).

343 But see above, paragraphs 2.90-2.93.

344 See above, paragraphs 2.82-2.93.

345 SC-M, paras 3.05-3.24, 3.40-3.51.

already been dealt with in Hungary's Memorial,[346] and only a few additional comments are necessary here.

3.153. There has been a substantial practice of assuring continuity to treaties by agreement between successor States and third States. But this practice has been consensual in its basis and in its implementation. In particular, successor states in Eastern Europe have not been able to assert an unconditional *right* to succeed to treaties as against other States.

3.154. For example, the practice of the Council of Europe does not support a general rule of succession to treaties, even major multilateral treaties. After consideration by its Committee of Legal Advisers,[347] the Council has required successor States to accede to its various conventions. The Czech Ambassador to the Council of Europe has commented that:

> "La règle de la succession automatique incorporée dans l'article 34, paragraph 1 de la Convention de Vienne de 1978 ne peut pas être évaluée, compte tenue de la pratique du Conseil de l'Europe, en tant qu'expression du droit international coutumier. Cette pratique prouve par contre, que surtout en ce qui concerne les traités au nombre restreint de Parties, celles-ci considèrent la disparition d'une autre Partie et les prétentions de ses successeurs comme une réalité, qui change fondamentalement les circonstances de l'application de ces traités, et qui active, par conséquent, la clause rebus sic stantibus du droit des traités. Les autres Etats-Parties doivent réexaminer la situation, ce qui rend impossible une succession automatique."[348]

3.155. This is significant practice by one of the two most important organisations for the region.[349] A similar practice has been adopted by

---

346 H-M, paras 10.115-10.117.

347 See Council of Europe, Committee of Ministers, "Memorandum on Council of Europe Practice with regard to State Succession in the Matter of Treaties", Strasbourg, 12 January 1994; HM, Annexes, vol 4, annex 178. As the Memorandum points out, the practice of the Council of Ministers in requiring accession, even in simplified form, involves a clear rejection of the "automatic succession" theory; Ibid, paras 4, 10.

348 J Malenovsky, "La Succession au Conseil de l'Europe" in G Burdeau and B Stern (eds), *Dissolution, Continuation et Succession en Europe de l'Est* (Montchrestien, Paris, 1994), 134 at 141.

349 SC-M, para 3.51 treats the Council of Europe practice as based on Art 34(2)(b) of the Vienna Convention; i.e. it asserts that for Council of Europe treaties "the application of the treaty in respect of the successor State would be incompatible with the object and purpose of the treaty or would radically change the conditions

the other such organisation, the European Communities. Despite claims by both the Czech Republic and Slovakia to succeed to Czechoslovakia's association agreement with the EC,[350] the EC required that new agreements be concluded. In fact the new agreements are substantially identical to the Czechoslovak agreement they replace.[351]

3.156. Even when two States by exchange of notes "confirm" in force treaties to which one of those States claims to have succeeded, there is usually a large measure of selectivity, and the result can in no way be said to be produced "automatically" or by operation of a rule requiring succession to all treaties irrespective of the wishes of the parties – such a rule as Slovakia invokes in the present case. This is implied by Slovakia's own practice with Hungary. Attached to its *Note Verbale* of 15 December 1993 is a list of Czechoslovak treaties, with statements of position by Slovak ministries. Some are to be "rescinded"; some maintained in force, whether or not "invariably"; some are to be maintained "temporarily" in force; some are to be amended. One is said to be "already invalid". The candour of the document is refreshing, and it reflects the reality of dozens of negotiations which have occurred with successor states since 1989, the overall effect of which has been substantially to alter pre-existing treaty patterns. All of this calls for negotiation on a case-by-case basis.[352] That is what Slovakia proposed

---

for its operation". But there is no indication in Council of Europe documents of any reliance on Art 34(2)(b), and the willingness of the Council of Europe to allow accession to the treaties in question shows there is no incompatibility. What the Council of Europe has rejected is automatic succession, the rule on which Slovakia relies.

350 EC-Czechoslovak Agreement of 16 December 1991. This Agreement had not entered into force at the date of the succession.

351 See e.g., EC-Slovak Republic, Europe Agreement, Brussels, 4 October 1993: *OJEC* No L 359/1 (13.12.94). Preambular para 3 recognises the necessity to conclude a new agreement following the dissolution of Czechoslovakia. Protocol 8 embodies an agreement to succession with respect to certain subsidiary arrangements concerning transit and land transport infrastructure. The EC's approach has been said to involve "une véritable novation dans les accords liant ces pays avec la Communauté européenne afin d'extraire de nouveaux rapprochements et de nouveaux partenariats"; G Clariana, "La Succession dans les Communautés Européennes" in Burdeau and Stern, 127 at 133.

352 A good example is the Exchange of Notes between Sweden and Slovenia of 29 April/3 May 1993 (HR, Annexes, vol 3, annex 95). 19 bilateral treaties with the SFRY are listed in the 1992 Swedish Treaty List: *Register over Sveriges internationella overenskommelser den 31 December 1992* (Stockholm, 1993) (HR, Annexes, vol 3, annex 93 at pp 446-447). The *World Treaty Index* (1974) lists a further 8 Swedish-Yugoslav bilateral treaties. Only *three* of these 27 treaties are continued by the Exchange of Notes; *Register* (1993) (ibid, at p 448). Many other instances of discontinuity could be given. For example, Tanzania's treaty practice after its union with Zanzibar was inconsistent with the automatic continuity rule:

and Hungary accepted.[353] Far from the *menu fixe* with limited alternatives required by Article 34, State practice with bilateral treaties has clearly proceeded on an *à la carte* basis.

3.157. There is an element of paradox in the Slovak argument that Article 34(1) of the 1978 Vienna Convention now reflects general international law. At the time it was concluded, no authority on the law of state succession regarded the 1978 Convention as anything but an exercise in "progressive development".[354] The Badinter Commission has adopted a similar cautious approach to it.[355] And yet it is said that a Convention which did not codify international law at the time, which has not entered into force, which is widely regarded as an unsuccessful exercise in international law-making and which does not correspond to subsequent practice has somehow produced a new rule of international law. The conditions laid down by the Court in the *North Sea Continental Shelf* cases[356] for law-making by multilateral treaty have certainly not been met in the case of Article 34 of the 1978 Vienna Convention.

---

see EE Seaton and ST Maliti, *Tanzania Treaty Practice* (OUP, London, 1973) 66, 68. Similarly Singapore's practice after its separation from Malaysia: *ILC Ybk* 1970/2, 102, 118; *ILC Ybk* 1971/2(2), 111, 140.

353 See HR, Annexes, vol 3, annex 96. SC-M, paras 3.40-3.47 argues that these negotiations occur on the basis of a "presumption of succession". Whether or not this is true, it is not the rule enunciated in Art 34, which *requires* succession unless both parties agree, or unless the narrowly formulated exception in Art 34(2)(b) applies. According to Art 34, a successor State has a *right* to succeed, except in cases covered by Art 34(2)(b). As far as is known, treaty succession negotiations in recent years have not proceeded on the basis of enforceable rights, but on the basis of mutual agreement. The practice of the IMF and EBRD is also inconsistent with the idea of a right to succeed, as distinct from a case-by-case analysis of the merits of an application; see PR Williams, "State Succession and the International Financial Institutions: Political Criteria v Protection of Outstanding Financial Obligations" (1994), 43 *ICLQ* 776.

354 This was true both within the ILC (e.g., R Ago, *ILC Ybk* 1972/1, 75) and outside it (e.g., DP O'Connell, "Reflections on the State Succession Convention" (1979), 39 *ZaöRuV* 725). O'Connell was probably the contemporary authority *most* favourable to treaty continuity, yet he advocated only a flexible presumption of succession, and criticised the 1978 Convention for its rigidity; ibid. If there is a presumption of succession to treaties, it is rebutted in the present case; see HM, para 10.120.

355 SC-M, para 3.48 is critical of HM, para 10.114 for citing an opinion of the Badinter Commission concerned with non-treaty matters. But the passage cited referred generally to "the few well-established principles of international law applicable to State succession", and this reflects the Badinter Commission's consistent approach.

356 ICJ Rep 1969, p 6.

(4) CONCLUSION

3.158. For these reasons Slovakia did not automatically succeed to the 1977 Treaty on independence. Nor did it acquire rights over the natural resources or environment of Hungary under the law relating to "territorial regimes". The case is to be decided on the basis that the 1977 Treaty, even if it may have been in force before 31 December 1992, is no longer in force.

SECTION D: RESTITUTION, REPARATION AND COMPENSATION

3.159. On the basis of its answers to the three questions identified in Article 2(1) of the Special Agreement, the Court is asked by Article 2(2) "to determine the legal consequences, including the rights and obligations for the Parties". Both parties now appear to agree that it is not for the Court at this stage to quantify any reparation due, or compensation payable, by either party to the other, nor to deal with specific questions of "modalities for executing its judgment"; these are reserved for a possible later phase of the Case in accordance with Article 5(2) of the Special Agreement.[357]

3.160. Accordingly, the following points need to be addressed in this Section: (1) the legal ground for Slovakia's international responsibility; (2) the extent of Slovakia's responsibility in the application of well established rules on reparation; (3) the need for the Court to adapt the classical criteria and means of valuation in the special context of environmental damage; (4) the issues of an account in respect of work done and (5) of property rights arising in respect of the Project.

(1) BASIS FOR SLOVAKIA'S INTERNATIONAL RESPONSIBILITY

3.161. Examining the legal consequences of the conduct of the parties, Slovakia points to the fact that "[t]he widely divergent views of the Parties as to the legal consequences of their conduct stem from their totally different analyses of events and, in particular, their opinions on whether Slovakia is a successor State in relation to the 1977 Treaty".[358] The primary reason for the divergence has nothing to do with the law of state succession; it is simply that Hungary regards the 1977 Treaty as

---

357 SC-M, para 12.25. That position seems to contradict the Slovak Memorial, which produced unrealistic estimations about alleged damages; SM, paras 9.34-9.47. For criticism of these figures, see HC-M, paras 7.17-7.24.

358 SC-M, para 12.01.

having been terminated whereas Slovakia (which was not an original party to that Treaty) does not. It is *Slovakia* which has to rely on the law of state succession in order to become a party to the Treaty. Moreover it has to do so in relation to a Treaty which, according to both original parties, was violated, and according to one original party was terminated as well as repudiated, before Slovakia even came into existence as a State. Its task in this respect is no less difficult for the fact that it has never – for a moment – since 1 January 1993 acted in accordance with the Treaty.

3.162. There is thus no ground for qualifying as "acrobatic" Hungary's arguments with regard to the responsibility of Slovakia for Czechoslovakia's wrongful acts.[359] Those issues arise in a clear and obvious way as soon as it is concluded that the Treaty was not in force on 1 June or 1 December 1992, no less than if the date for the disappearance of the Treaty is decided to have been 1 January 1993. Again, Slovakia substitutes epithet for argument.

3.163. Hungary has already explained the basis on which Slovakia is internationally responsible for its breaches of the law, as well as for Czechoslovakia's illicit conduct prior to its disappearance as a sovereign State.[360] From 1 January 1993 onwards, Slovakia effectively endorsed Variant C, now exclusively located on its territory. By its own action it maintained and aggravated the wrongful acts previously attributable to Czechoslovakia. There is no "acrobatic" element in recalling the well-established principle that there is in general no succession to international responsibility. The key exception is where a successor State, by its *own* conduct, has acted in such a way as to assume the breaches of the law committed by its predecessor.[361] The fact that Slovakia was never a party to the 1977 Treaty does not prejudice the legal character of a situation in which wrongful acts, previously committed in violation of the 1977 Treaty by Czechoslovakia, have been adopted and aggravated by Slovakia. When Slovakia became an independent State on 1 January 1993, it should have taken immediate steps to restore the Danube to its original course and to mitigate the damage created by the illegal diversion of the river. Of course, it did not.

3.164. In fact, Slovakia hardened the position earlier adopted by Czechoslovakia, in particular by persistently refusing to accept and apply the temporary water management regime proposed by the EC expert

---

359 SC-M, para 12.01.

360 HM, para 8.11-8.21.

361 HM, para 11.06-11.07.

Group.[362] This behaviour aggravates Slovakia's responsibility and it is within the jurisdiction of the Court to consider it.[363] Moreover Slovakia is implementing the second phase of Variant C to make it effectively a permanent structure, further consolidating the damage and risks created to the Hungarian environment and population.[364] The current situation is thus characterised by the continuity of the illicit conduct originating in Czechoslovakia's breach of the applicable law (which includes general international law as well as the pertinent treaties) and further carried into effect by Slovakia. There can be no doubt as to the responsibility of Slovakia, and of its obligation to make reparation for the overall damage caused to Hungary by the operation of Variant C.

3.165. In terms of reparation, this case is both a classical case of international responsibility and a new case of reparation for transfrontier damage caused to the human environment. This entails two complementary sets of consequences: *first*, application of well established international rules of reparation; *second*, adaptation of the classical criteria and means of valuation of damage to the special situation of environmental damage.

(2) APPLICATION OF WELL-ESTABLISHED RULES OF REPARATION IN THE FRAMEWORK OF STATE RESPONSIBILITY

3.166. This case, involving predominantly issues of State responsibility for wrongful acts, remains one in which the relevant rules of public international law governing the forms and content of the international responsibility of states must be applied. This means in particular that the Court should:

* *first*, order the cessation of the wrongful act constituted by the operation of Variant C. It would make no sense to allocate reparation for actual damage if the source of such damage were to continue to be active;[365]

* *second*, order the restoration of the situation prevailing before the wrongdoing, according to the *restitutio in integrum* rule.[366] In particular, the full restoration of the flow of water in the Danube's main course is of paramount

---

362 HM, para 3.204-3.223; HC-M, para 2.107-2.117; see HR, vol 2, Appendix 6.

363 HM, para 2.03.

364 HC-M, paras 3.115-3.122; see above, paragraphs 2.90-2.93, 3.64-3.65.

365 HM, para 8.37-8.38.

366 HM, para 8.39-8.42.

importance for the survival and restoration of the Szigetköz region together with its aquifer. Hungary stresses again that neither the interim solution proposed by the EC (which it was ready to accept on a strictly temporary basis) nor the water discharge set out in the Temporary Agreement of 19 April 1995 provide any basis or guidance for a final solution resolving the dispute;[367] and

* *third*, order reparation for those detrimental effects which cannot be remedied by the application of the *restitutio in integrum* rule.

3.167. The appropriate reparation should cover satisfaction for moral damage (including loss of amenity) affecting Hungarian nationals with regard to the uncertainty of their future conditions of health and livelihood, for themselves and future generations. This is without prejudice to the satisfaction owed by Slovakia to Hungary as to Slovakia's violations of obligations which did or do not produce material damage.[368]

3.168. State responsibility for an international wrong further requires a guarantee of non-repetition of the illicit act, a necessary condition for the definitive settlement of the dispute.[369]

3.169. In applying the above-mentioned classical categorisation of legal consequences attached to Slovakia's international responsibility, it is suggested that the Court should take due consideration of the particular nature of damage and risks affecting the environment, which, to date, the Court has not previously been asked to assess.[370]

---

367 See above, paragraphs 2.101-2.105.

368 HM, para 8.49-8.50.

369 G Arangio Ruiz, Second Report on State Responsibility, UN Doc A/CN.4/425 (July 1989), paras 185-188.

370 Criteria were recently adopted by the UN Compensation Commission: see (1992) 31 ILM 1051. Under these rules, payment may be available for direct environmental damage, depletion of natural resources, including losses or expenses resulting from prevention of environmental damage, reasonable measures to restore the environment and reasonable monitoring and assessment. Other useful precedents include rules and practice under international civil liability conventions relating *inter alia* to oil pollution, transport, waste, the Antarctic and general environmental damage. See P Sands, *Principles of International Environmental Law* (1995), 652-678, and references.

(3) ADAPTATION OF CLASSICAL CRITERIA AND MEANS OF VALUATION TO THE SPECIAL FEATURE OF ENVIRONMENTAL DAMAGE

3.170. The originality of this case arises from several factors, two of which should in particular be underlined. The *first* is the existence, together with actual material damage, of a high level of risk which, as the case may be, are either certain or very likely to materialise, either in the short or the longer term. The *second* is the difficulty of using traditional economic approaches for assessing environmental damage. It is particularly the case for the affected non-use values (i.e., the value to a society of not exploiting a resource, e.g., an old-growth forest). The point is simply that "[n]atural resources have value that is not readily measured by traditional means."[371]

3.171. In this context and considering the special features of environmental risk and the threats posed to present and future generations, the Court should determine, as precisely as possible, the categories of damage and the methodology and criteria for which compensation shall be established by both parties and performed by Slovakia.[372] It will be a matter for the parties in the first instance to negotiate on the basis of the Court's judgement, with a view to reaching a comprehensive and sustainable solution to their dispute.

3.172. The issue of the valuation of costs associated with the restoration of the environment has been explored both in international and national fora.[373] Judicial decisions include, for example, the *Zoe Colocotroni Case* in which the Court took into account the non-use value for the restoration of a mangrove forest devastated by oil pollution, on the assumption that "the ultimate purpose of any such remedy should be to protect the public interest in a healthy, functioning environment".[374]

---

371 *State of Ohio v US Department of Interior* 880 F 2d 432, 457 (1989 DC Cir).

372 HM, para 8.48.

373 For reviews of practice see, e.g., EC Commission, Green Paper on Remedying Environmental Damage, (COM(93)47), 17 March 1993; FB Cross, "Natural Resource Damage Valuation" (1989), 42 *Vanderbilt LR* 269-341. Among other methods for monetising damage to natural resources, US legislation makes distinctions as between restoration and replacement cost, market valuation, behavioural use valuation, contingent valuation: see OECD, *Compensation for Pollution Damage* (Paris, 1981); Chao Wu, *La pollution du fait du transport maritime des hydrocarbures* (Paris, Pedone, 1994), 411-461, esp 428-435. See also HR, vol 2, Appendix 5.

374 *Puerto Rico v SS Zoe Colocotroni* 628 F 2d 652 (1980, 1st Cir). See also C Huglo, "La pratique de la réparation en matière de dommages catastrophiques", in *La réparation des dommages catastrophiques, Travaux des XIIIemes Journées*

Accordingly, to the extent the Court decides at this stage to consider heads of damage in relation to this dispute, it should include the traditional heads of damage and in addition heads relating to damage for environmental loss and depletion of natural resources. With regard to the latter it should take as its starting point the heads of damage recently set by the UN Compensation Commission, which draws upon applicable international precedents.

(4) ACCOUNT IN RESPECT OF WORK DONE

3.173. Hungary has always maintained that the termination of the 1977 Treaty would require an account of work done according to its terms, with a view to settling that account as between the parties. Slovakia seems to have difficulties in assessing the legal ground on which Hungary may have considered this kind of "compensation", not in the sense of actual reparation for damage created by any wrongful act, but as a consequence of the regime of the 1977 Treaty.[375] But the position taken by Hungary is logical and consistent:[376] not having been a party or a successor to this Treaty, Slovakia has no right to such an account, even on the basis of the rule set out in Article 70(b) of the Vienna Convention of the Law of Treaties. That provision is restricted to "legal situations of the parties created through the execution of the treaty prior to its termination" and Slovakia was never a party to the 1977 Treaty.

3.174. However, Hungary has also been prepared to accept, as reflected in preambular paragraph 2 of the Special Agreement, that Slovakia is "the sole successor State in respect of rights and obligations relating to the Gabcikovo-Nagymaros Project".[377] In that respect, Hungary is ready to consider an account for work properly done by both parties, excluding of course any work done to give effect to, or incorporated in, Variant C,

---

d'études juridiques Jean Dabin (Bruylant, Bruxelles, 1990), 145; Colloque de la Société Française pour le Droit de l'Environnement, *Le dommage écologique en droit interne, communautaire et comparé* (Economica, 1992); R Pisillo-Mazzeschi, "Forms of International Responsibility for Environmental Harm", in F Francioni and T Scovazzi (eds), *International Responsibility for Environmental Harm* (Graham and Trotman/Martinus Nijhoff, 1991), 15; A de Raulin, "L'épopée judiciaire de l'Amoco Cadiz" (1993/I), *Journal de Droit International*, 41.

375 See HM, para 11.09. The term "compensation" should be reserved for indemnifications paid by a state not on a responsibility basis but as a result of a duty to compensate damage not created by wrongful acts; for instance, in the case of damage due to the termination of a treaty on the ground of necessity.

376 HM, para 11.10.

377 HM, Annexes, vol 3, annex 32.

which was conceived, implemented and operated in breach of the 1977 Treaty, of other applicable treaties, and of general international law.[378]

(5) PROPERTY RIGHTS

3.175. Slovakia considers that the Court will have "to determine the respective ownership rights of the Parties in its overall consideration of remedies, taking into account the actual investment of the Parties in such properties, the relative performance by the Parties in respect of such properties, the relative performance by the Parties of their treaty obligations, and any rights of set-off or counterclaim."[379] In Hungary's view, the determination of *property* rights (as distinct from compensation, damages or an account) does not need any consideration other than upon the basis provided by Article 8 of the 1977 Treaty, compared to the actual situation created after the termination of the Treaty. Property rights of the Czechoslovak State will have passed to the Slovak Republic, by operation of the rules of state succession with respect to state property, reflected in the second preambular paragraph of the Special Agreement.[380]

3.176. It follows that the only property issues are those which arise with respect to the Dunakiliti dam, the bypass canal and the Gabčíkovo series of locks. They were subject in principle to a regime of joint ownership under Article 8(1) of the Treaty. Hungary's existing property rights in those installations cannot have been affected by their illicit use as part of Variant C. The issue of damages for the use of these jointly owned units is no doubt subsumed in the general claim for damages and an account, which has already been discussed.

(6) CONCLUSION

3.177. This discussion is not intended to provide an exhaustive account of the overall remedial context. Many of the environmental damages caused by the continued implementation of Variant C will arise only progressively. The most effective procedure would no doubt be for the two parties periodically to review the state of the environment in the concerned region with a view to adopting and implementing the best remedial procedures. This would, however, require a level of

---

378 HM, para 11.09.

379 SC-M, para 12.16.

380 HM, para 11.12-11.16.

cooperation between the two States with a view to the protection of the environment that is, unfortunately, far from existing at present.[381]

SECTION E. SUMMARY OF CONCLUSIONS IN THIS CHAPTER

3.178. Hungary reserves its right in due course to present further information about the development of the situation and the assessment of damage to the environment caused by Variant C.

3.179. By way of summary this Chapter shows that:

(1) Hungary was justified in suspending and subsequently abandoning work on the Nagymaros Project and on that part of the Gabčíkovo Project for which it was responsible, because this was necessary to prevent impairment of an essential interest. Hungary is not precluded from invoking the doctrine of necessity either under customary law or under the 1977 Treaty (paragraphs 3.07-3.14); joint ascertainment of the facts justifying the suspension of works was not a necessary pre-condition prior to such suspension (paragraphs 3.15-3.20); ,and Hungary fulfilled the applicable requirements for invoking necessity in relation to all three elements of the Project (paragraphs 3.21-3.38).

(2) The implementation of Variant C was unlawful under the 1977 Treaty, other applicable treaties, and general international law, whether or not the 1977 Treaty remained in force after May 1992 (paragraphs 3.42-3.55). It is also unlawful because it caused (and continues to cause) significant damage to the environment of Hungary (paragraphs 3.56-3.57) and violates the principle of equitable use of transboundary natural resources (paragraphs 3.58-3.63). Its illegality is aggravated by its permanent character (paragraphs 3.64-3.65). It cannot be justified as a counter-measure (paragraphs 3.66-3.67).

(3) The 1977 Treaty is no longer in force. It was lawfully terminated by Hungary, and in any event was repudiated by Czechoslovakia, at the latest by October 1992. It would not in any event have survived the dissolution of one party, Czechoslovakia, at the end of 1992.

   (a) Hungary was justified in *terminating* the 1977 Treaty, in particular, on grounds of material breach occasioned by the

---

381 Notwithstanding the 1995 Mitigation Agreement, which has only limited aims and is likely to have only a very limited effect; see above, paragraphs 2.101-2.105.

implementation of Variant C (paragraphs 3.71-3.73), as well as of fundamental change of circumstances which rendered the Original Project's objectives unattainable (paragraphs 3.74-3.113). In addition, a number of other grounds for termination were available: necessity occasioned by the implementation of Variant C (paragraphs 3.114-3.118); impossibility of performance because its object had permanently disappeared (paragraphs 3.119-3.124); conflict with subsequent obligations under general international law (paragraphs 3.125-3.128).

(b) The 1977 Treaty was *repudiated* through Czechoslovakia's implementation of Variant C (paragraphs 3.129-1.132).

(c) Slovakia did not automatically *succeed* to the 1977 Treaty under the law of state succession (paragraphs 3.133-3.158).

(4) Slovakia bears international responsibility for its breaches of the law (continued operation of Variant C) and for Czechoslovakia's illicit conduct before December 1992 (by maintaining and aggravating those wrongful acts) (paragraphs 3.161-3.165). It is subject to the general obligations of reparation (paragraphs 3.166-3.169), having regard also to the special features present in respect of environmental damage (paragraphs 3.170-3.172).

(5) There should be an account in respect of work properly and lawfully done under the Treaty, but taking into account any unlawful appropriation of elements of the Project (paragraphs 3.173-3.174). Determination of property rights depends on the 1977 Treaty itself (paragraphs 3.175-3.176).

SUBMISSIONS

On the basis of the evidence and legal argument presented in the Memorial, Counter-Memorial, and this Reply, the Republic of Hungary

Requests the Court to adjudge and declare

First, that the Republic of Hungary was entitled to suspend and subsequently abandon the works on the Nagymaros Project and on the part of the Gabčíkovo Project for which the Treaty attributed responsibility to the Republic of Hungary;

Second, that the Czech and Slovak Federal Republic was not entitled to proceed to the "provisional solution" (damming up of the Danube at river kilometre 1851.7 on Czechoslovak territory and resulting consequences on water and navigation course);

Third, that by its Declaration of 19 May 1992, Hungary validly terminated the Treaty on the Construction and Operation of the Gabčíkovo-Nagymaros Barrage System of 16 September 1977;

Requests the Court to adjudge and declare further

that the legal consequences of these findings and of the evidence and the arguments presented to the Court are as follows:

(1) that the Treaty of 16 September 1977 has never been in force between the Republic of Hungary and the Slovak Republic;

(2) that the Slovak Republic bears responsibility to the Republic of Hungary for maintaining in operation the "provisional solution" referred to above;

(3) that the Slovak Republic is internationally responsible for the damage and loss suffered by the Republic of Hungary and by its nationals as a result of the "provisional solution";

(4) that the Slovak Republic is under an obligation to make reparation in respect of such damage and loss, the amount of such reparation, if it cannot be agreed by the Parties within six months of the date of the Judgement of the Court, to be determined by the Court;

(5) that the Slovak Republic is under the following obligations:

(a) to return the waters of the Danube to their course along the international frontier between the Republic of Hungary and the Slovak Republic, that is to say the main navigable channel as defined by applicable treaties;

(b) to restore the Danube to the situation it was in prior to the putting into effect of the provisional solution; and

(c) to provide appropriate guarantees against the repetition of the damage and loss suffered by the Republic of Hungary and by its nationals.

(*Signed*) György Szénási

Agent for the Government of the Republic of Hungary,

15 June 1995

LISTS OF ANNEXES

VOLUME 2

A. SCIENTIFIC REBUTTAL Page

VOLUME 2: LIST OF COLOUR PLATES

VOLUME 2: LIST OF COLOUR PLATES

VOLUME 2: LIST OF FIGURES

VOLUME 3: ANNEXES

A. SCIENTIFIC REPORTS

VOLUME 3: ANNEXES

B. LEGAL DOCUMENTS

CORRESPONDENCE BETWEEN THE PARTIES, THE ICJ, AND THE UN

VOLUME 3: ANNEXES

CORRESPONDENCE BETWEEN THE PARTIES, THE ICJ, AND THE UN

TREATIES AND INTERNATIONAL AGREEMENTS BETWEEN THE PARTIES

VOLUME 3: ANNEXES

DIPLOMATIC CORRESPONDENCE, GOVERNMENT RESOLUTIONS, MINUTES OF INTERGOVERNMENTAL MEETINGS, PUBLIC STATEMENTS, AND INTERNAL DOCUMENTS

VOLUME 3: ANNEXES

DIPLOMATIC CORRESPONDENCE, GOVERNMENT RESOLUTIONS, MINUTES OF INTERGOVERNMENTAL MEETINGS, PUBLIC STATEMENTS, AND INTERNAL DOCUMENTS

VOLUME 3: ANNEXES

DIPLOMATIC CORRESPONDENCE, GOVERNMENT RESOLUTIONS, MINUTES OF INTERGOVERNMENTAL MEETINGS, PUBLIC STATEMENTS, AND INTERNAL DOCUMENTS

VOLUME 3: ANNEXES

DIPLOMATIC CORRESPONDENCE, GOVERNMENT RESOLUTIONS, MINUTES OF INTERGOVERNMENTAL MEETINGS, PUBLIC STATEMENTS, AND INTERNAL DOCUMENTS

VOLUME 3: ANNEXES

DIPLOMATIC CORRESPONDENCE, GOVERNMENT RESOLUTIONS, MINUTES OF INTERGOVERNMENTAL MEETINGS, PUBLIC STATEMENTS, AND INTERNAL DOCUMENTS

VOLUME 3: ANNEXES

DIPLOMATIC CORRESPONDENCE, GOVERNMENT RESOLUTIONS, MINUTES OF INTERGOVERNMENTAL MEETINGS, PUBLIC STATEMENTS, AND INTERNAL DOCUMENTS

VOLUME 3: ANNEXES

DIPLOMATIC CORRESPONDENCE, GOVERNMENT RESOLUTIONS, MINUTES OF INTERGOVERNMENTAL MEETINGS, PUBLIC STATEMENTS, AND INTERNAL DOCUMENTS

VOLUME 3: ANNEXES

DIPLOMATIC CORRESPONDENCE, GOVERNMENT RESOLUTIONS, MINUTES OF INTERGOVERNMENTAL MEETINGS, PUBLIC STATEMENTS, AND INTERNAL DOCUMENTS

VOLUME 3: ANNEXES

DIPLOMATIC CORRESPONDENCE, GOVERNMENT RESOLUTIONS, MINUTES OF INTERGOVERNMENTAL MEETINGS, PUBLIC STATEMENTS, AND INTERNAL DOCUMENTS

VOLUME 4: CHRONOLOGY OF SIGNIFICANT EVENTS, 1988-1994

Akadémiai Nyomda. Budapest
Printed in Hungary

Upper Danube
Gabčíkovo-Nagymaros

BRATISLAVA

AUSTRIA

SLOVAKIA

HUNGARY

Dunajská Lužná

Šamorín

Čunovo

Dunakiliti-Hrušov Reservoir

Rajka

DUNAKILITI WEIR

Dunakiliti

Dobrohošť

Vojka n. Dunajom

Dunajská Streda

Headrace Canal

Vrakún

Dunasziget

Bodíky

GABČÍKOVO BARRAGE

Kisbodak

Gabčíkovo

Dunaremete

Tailrace Canal

Čalovo

Lipót

Mosonmagyaróvár

Hédervár

Ásványráró

Sap

Čiližská Radváň

Medveďov

Mosoni-Duna

Dunaszeg

Vámos-szabadi

Čičov

Nagybajcs

Kisbajcs

Győrújfalu

Gönyű

Komárno

Komárom

Ács

Almásfüzitő

Győr

Rába

Naszály

Mocsa

Malý Dunaj

Váh

Vázsky Dunaj

Žitný ostrov

Szigetköz

1850 1840 1830 1820 1811 1810 1800 1790 1780 1770 1760

Edited by:

ECOPLAN Ltd.
1011 Budapest Corvin tér 3.

Data:

FDKIR

Danube Environmental Monitoring and Information System

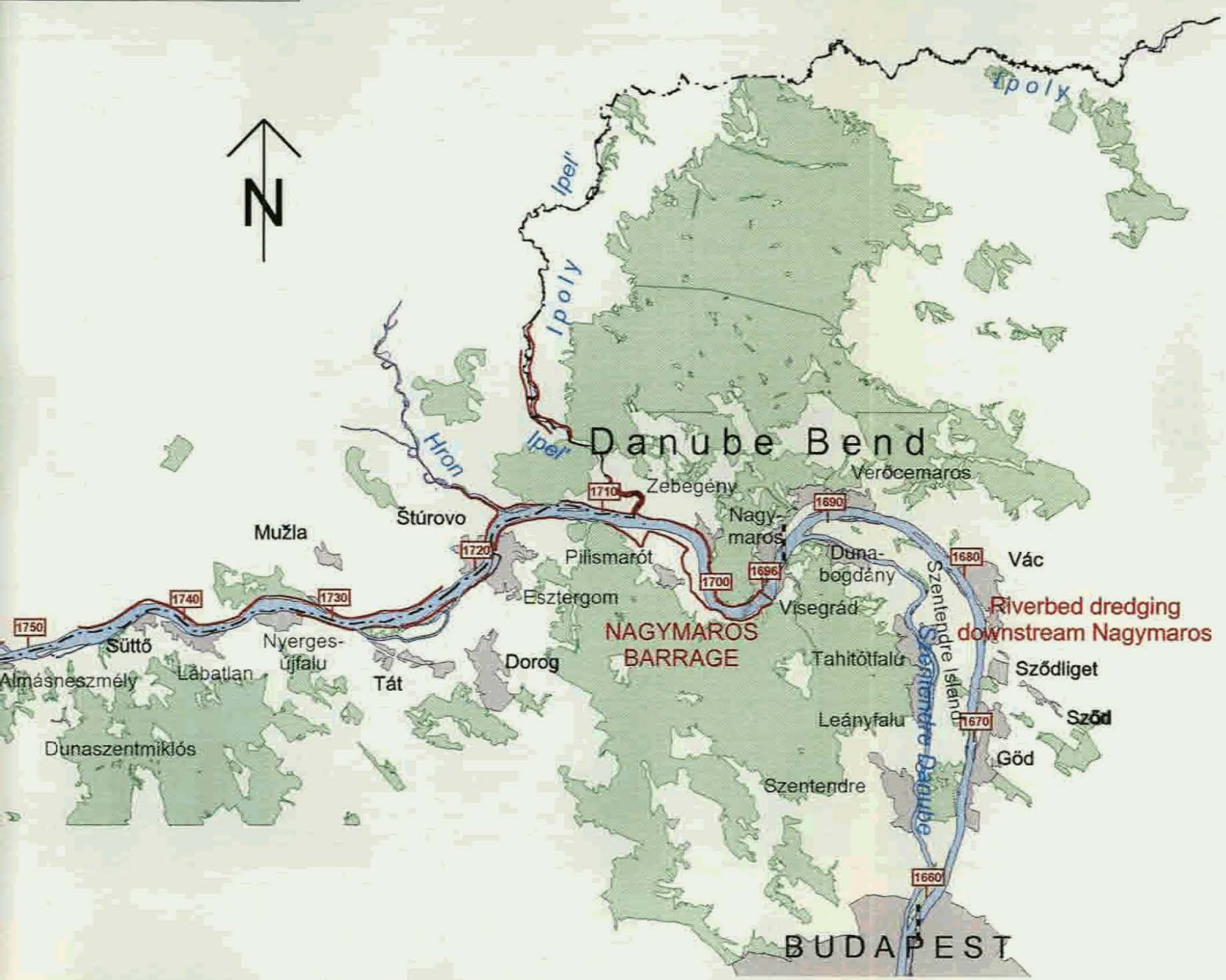
River Section
os Barrage System

Environmental Impact Area

Original Plan

Scale: M = 1:300.000

0 10 km



Legend

- *Power canal, reservoir*
- *Inundation dike*
- *Settlement*
- *Danube*
- *Forest*
- *River gauging station*
- *River km*
- *State border*
- *Barrage*
- *Embankment*

Plate 2

Upper Danube
Gabčíkovo-Nagymaros

BRATISLAVA

AUSTRIA

SLOVAKIA

HUNGARY

Žitný Ostrov

Šamorín

Dunajská Lužná

Čunovo Reservoir

Čunovo

ČUNOVO DAM

Rajka

Dobrohošť

Vojka n. Dunajom

Dunajská Streda

Malý Dunaj

Váh

Headrace Canal

Dunakiliti

Szigetköz

Dunasziget

Kisbodak

Bodíky

Vrakún

GABČÍKOVO BARRAGE

Gabčíkovo

Čalovo

Dunaremete

Tailrace Canal

Lipót

Mosonmagyaróvár

Hédervár

Ásványráró

Sap

Čiližská Radváň

Vázsky Dunaj

Medveďov

Mosoni-Duna

Dunaszeg

Szigetköz

Vámos-szabadi

Čičov

Komárno

Nagybajcs

Kisbajcs

Győrújfalu

Gönyű

Komárom

Almásfüzitő

Ács

Győr

Naszály

Mocsa

Rába

1850 1840 1830 1820 1811 1810 1800 1790 1780 1770 1760

Edited by:

ECOPLAN Ltd.
1011 Budapest Corvin tér 3.

Data:

FDKIR

Danube Environmental Monitoring and Information System

River Section
os Barrage System

Environmental Impact Area

Variant C

Scale: M = 1:300.000

0 10 km

N

Legend

- Power canal, reservoir
- Inundation dike
- Settlement
- Danube
- Forest
- River gauging station
- River km
- State border
- Barrage
- Embankment

Plate 3

Ipoly
Ipel'
Ipoly
Hron
Ipel'
Danube Bend
Verőcemaros
Zebegény
Štúrovo
Mužla
Nagy-
maros
Pilismarót
Duna-
bogdány
Vác
Esztergom
Visegrád
Szentendre Island
Szentendre Danube
Süttő
Nyerges-
újfalu
Tahitótfalu
Sződliget
Almásneszmély
Lábatlan
Tát
Dorog
Leányfalu
Szöd
Dunaszentmiklós
Göd
Szentendre
BUDAPEST
1750
1740
1730
1720
1710
1700
1696
1690
1680
1670
1660