Non-Corrigé
Uncorrected

CR 2009/17

Cour internationale de Justice

LA HAYE

International Court of Justice

THE HAGUE

ANNÉE 2009

Audience publique

tenue le mardi 22 septembre 2009, à 10 heures, au Palais de la Paix,

sous la présidence de M. Tomka, vice-président,
faisant fonction de président

***en l'affaire relative à des* Usines de pâte à papier sur le fleuve Uruguay**
(Argentine c. Uruguay)

COMPTE RENDU

YEAR 2009

Public sitting

held on Tuesday 22 September 2009, at 10 a.m., at the Peace Palace,

Vice-President Tomka, Acting President, presiding,

***in the case concerning* Pulp Mills on the River Uruguay**
(Argentina *v.* Uruguay)

VERBATIM RECORD

Présents : M. Tomka, vice-président, faisant fonction de président en l'affaire
MM. Koroma
Al-Khasawneh
Buergenthal
Simma
Abraham
Keith
Sepúlveda-Amor
Bennouna
Skotnikov
Cançado Trindade
Yusuf
Greenwood, juges
MM. Torres Bernárdez
Vinuesa, juges *ad hoc*

Mme de Saint Phalle, greffier adjoint

Present:	Vice-President	Tomka, Acting President
	Judges	Koroma
		Al-Khasawneh
		Buergenthal
		Simma
		Abraham
		Keith
		Sepúlveda-Amor
		Bennouna
		Skotnikov
		Cançado Trindade
		Yusuf
		Greenwood
	Judges *ad hoc*	Torres Bernárdez
		Vinuesa
	Deputy-Registrar	de Saint Phalle

Le Gouvernement de la République argentine est représenté par :

S. Exc. Mme Susana Ruiz Cerutti, ambassadeur, conseiller juridique du ministère des relations extérieures, du commerce international et du culte,

comme agent ;

S. Exc. M. Horacio A. Basabe, ambassadeur, directeur général de l'Institut du service extérieur de la nation, ancien conseiller juridique du ministère des relations extérieures, du commerce international et du culte, membre de la Cour permanente d'arbitrage,

S. Exc. M. Santos Goñi Marenco, ambassadeur de la République argentine auprès du Royaume des Pays-Bas,

comme coagents ;

M. Alain Pellet, professeur à l'Université Paris Ouest, Nanterre-La Défense, membre et ancien président de la Commission du droit international, membre associé de l'Institut de droit international,

M. Philippe Sands QC, professeur de droit international au University College de Londres, avocat, Matrix Chambers, Londres,

M. Marcelo Kohen, professeur de droit international à l'Institut de hautes études internationales et du développement, Genève, membre associé de l'Institut de droit international,

Mme Laurence Boisson de Chazournes, professeur de droit international à l'Université de Genève,

M. Alan Béraud, ministre à l'ambassade de la République argentine auprès de l'Union européenne, ancien conseiller juridique du ministère des affaires étrangères, du commerce international et du culte,

M. Daniel Müller, chercheur au Centre de droit international de Nanterre (CEDIN), Université de Paris Ouest, Nanterre-La Défense,

comme conseils et avocats ;

M. Homero Bibiloni, secrétaire d'Etat à l'environnement et au développement durable,

comme autorité gouvernementale ;

M. Esteban Lyons, directeur national du contrôle environnemental du secrétariat à l'environnement et au développement durable,

M. Howard Wheater, docteur en hydrologie de l'Université de Bristol, professeur d'hydrologie à l'Imperial College, directeur de l'Imperial College Environment Forum,

M. Juan Carlos Colombo, docteur en océanographie de l'Université de Québec, professeur à la faculté des sciences et au musée de l'Université de La Plata, directeur du Laboratoire de chimie environnementale et de biogéochimie de l'Université de La Plata,

M. Neil McIntyre, docteur en ingénierie environnementale, maître de conférences à l'Imperial College, Londres,

The Government of the Republic of Argentina is represented by:

H.E. Ms Susana Ruiz Cerutti, Ambassador, Legal Adviser to the Ministry of Foreign Affairs, International Trade and Worship,

as Agent;

H.E. Mr. Horacio A. Basabe, Ambassador, Director of the Argentine Institute for Foreign Service, former Legal Adviser to the Ministry of Foreign Affairs, International Trade and Worship, Member of the Permanent Court of Arbitration,

H.E. Mr. Santos Goñi Marenco, Ambassador of the Argentine Republic to the Kingdom of the Netherlands,

as Co-Agents;

Mr. Alain Pellet, Professor at the University of Paris Ouest, Nanterre-La Défense, member and former Chairman of the International Law Commission, associate member of the Institut de droit international,

Mr. Philippe Sands QC, Professor of International Law at the University College London, Barrister at Matrix Chambers, London,

Mr. Marcelo Kohen, Professor of International Law at the Graduate Institute of International and Development Studies, Geneva, associate member of the Institut de droit international,

Ms Laurence Boisson de Chazournes, Professor of International Law at the University of Geneva,

Mr. Alan Béraud, Minister at the Embassy of the Argentine Republic to the European Union, former Legal Adviser to the Ministry of Foreign Affairs, International Trade and Worship,

Mr. Daniel Müller, Researcher at the Centre de droit international de Nanterre (CEDIN), University of Paris Ouest, Nanterre-La Défense,

as Counsel and Advocates;

Mr. Homero Bibiloni, Federal Secretary of Environment and Sustainable Development,

as Governmental Authority;

Mr. Esteban Lyons, National Director of Environmental Control, Secretariat of Environment and Sustainable Development,

Mr. Howard Wheater, PhD in Hydrology at Bristol University, Professor of Hydrology at Imperial College and Director of the Imperial College Environment Forum,

Mr. Juan Carlos Colombo, PhD in Oceanography at the University of Québec, Professor at the Faculty of Sciences and Museum of the National University of La Plata, Director of the Laboratory of Environmental Chemistry and Biogeochemistry at the National University of La Plata,

Mr. Neil McIntyre, PhD in Environmental Engineering, Senior Lecturer in Hydrology at Imperial College London,

Mme Inés Camilloni, docteur en sciences atmosphériques, professeur de sciences atmosphériques à la faculté des sciences de l'Université de Buenos Aires, maître de recherche au conseil national de recherche (CONICET),

M. Gabriel Raggio, docteur en sciences techniques de l'Ecole polytechnique fédérale de Zürich (ETHZ) (Suisse), consultant indépendant,

comme conseils et experts scientifiques ;

M. Holger Martinsen, ministre au bureau du conseiller juridique du ministère des affaires étrangères, du commerce international et du culte,

M. Mario Oyarzábal, conseiller d'ambassade, bureau du conseiller juridique du ministère des affaires étrangères, du commerce international et du culte,

M. Fernando Marani, secrétaire d'ambassade, ambassade de la République argentine au Royaume des Pays-Bas,

M. Gabriel Herrera, secrétaire d'ambassade, bureau du conseiller juridique du ministère des affaires étrangères, du commerce international et du culte,

Mme Cynthia Mulville, secrétaire d'ambassade, bureau du conseiller juridique du ministère des affaires étrangères, du commerce international et du culte,

Mme Kate Cook, avocat, Matrix Chambers, Londres, spécialisée en droit de l'environnement et en droit du développement,

Mme Mara Tignino, docteur en droit, chercheur à l'Université de Genève,

M. Magnus Jesko Langer, assistant d'enseignement et de recherche, Institut de hautes études internationales et du développement, Genève,

comme conseillers juridiques.

Le Gouvernement de l'Uruguay est représenté par :

S. Exc. M. Carlos Gianelli, ambassadeur de la République orientale de l'Uruguay auprès des Etats-Unis d'Amérique,

comme agent ;

S. Exc. M. Carlos Mora Medero, ambassadeur de la République orientale de l'Uruguay auprès du Royaume des Pays-Bas,

comme coagent ;

M. Alan Boyle, professeur de droit international à l'Université d'Edimbourg, membre du barreau d'Angleterre,

M. Luigi Condorelli, professeur à la faculté de droit de l'Université de Florence,

M. Lawrence H. Martin, cabinet Foley Hoag LLP, membre du barreau de la Cour suprême des Etats-Unis d'Amérique, du barreau du district de Columbia et du barreau du Commonwealth du Massachusetts,

Ms Inés Camilloni, PhD in Atmospheric Sciences, Professor of Atmospheric Sciences at the Faculty of Sciences of the University of Buenos Aires, Senior Researcher at the National Research Council (CONICET),

Mr. Gabriel Raggio, Doctor in Technical Sciences of the Swiss Federal Institute of Technology Zurich (ETHZ) (Switzerland), Independent Consultant,

as Scientific Advisers and Experts;

Mr. Holger Martinsen, Minister at the Office of the Legal Adviser, Ministry of Foreign Affairs, International Trade and Worship,

Mr. Mario Oyarzábal, Embassy Counsellor, Office of the Legal Adviser, Ministry of Foreign Affairs, International Trade and Worship,

Mr. Fernando Marani, Embassy Secretary, Embassy of the Argentine Republic in the Kingdom of the Netherlands,

Mr. Gabriel Herrera, Embassy Secretary, Office of the Legal Adviser, Ministry of Foreign Affairs, International Trade and Worship,

Ms Cynthia Mulville, Embassy Secretary, Office of the Legal Adviser, Ministry of Foreign Affairs, International Trade and Worship,

Ms Kate Cook, Barrister at Matrix Chambers, London, specializing in environmental law and law relating to development,

Ms Mara Tignino, PhD in Law, Researcher at the University of Geneva,

Mr. Magnus Jesko Langer, teaching and research assistant, Graduate Institute of International and Development Studies, Geneva,

as Legal Advisers.

The Government of Uruguay is represented by:

H.E. Mr. Carlos Gianelli, Ambassador of the Eastern Republic of Uruguay to the United States of America,

as Agent;

H.E. Mr. Carlos Mora Medero, Ambassador of the Eastern Republic of Uruguay to the Kingdom of the Netherlands,

as Co-Agent;

Mr. Alan Boyle, Professor of International Law at the University of Edinburgh, Member of the English Bar,

Mr. Luigi Condorelli, Professor at the Faculty of Law, University of Florence,

Mr. Lawrence H. Martin, Foley Hoag LLP, Member of the Bars of the United States Supreme Court, the District of Columbia and the Commonwealth of Massachusetts,

M. Stephen C. McCaffrey, professeur à la McGeorge School of Law de l'Université du Pacifique, Californie, ancien président de la Commission du droit international et rapporteur spécial aux fins des travaux de la Commission relatifs aux cours d'eau internationaux,

M. Alberto Pérez Pérez, professeur à la faculté de droit de l'Université de la République, Montevideo,

M. Paul S. Reichler, cabinet Foley Hoag LLP, membre du barreau de la Cour suprême des Etats-Unis d'Amérique et du barreau du district de Columbia,

comme conseils et avocats ;

M. Marcelo Cousillas, conseiller juridique à la direction nationale de l'environnement, ministère du logement, de l'aménagement du territoire et de l'environnement de la République orientale de l'Uruguay,

M. César Rodriguez Zavalla, chef de cabinet au ministère des affaires étrangères de la République orientale de l'Uruguay,

M. Carlos Mata, directeur adjoint des affaires juridiques au ministère des affaires étrangères de la République orientale de l'Uruguay,

M. Marcelo Gerona, conseiller à l'ambassade de la République orientale de l'Uruguay au Royaume des Pays-Bas,

M. Eduardo Jiménez de Aréchaga, avocat, admis au barreau de la République orientale de l'Uruguay et membre du barreau de New York,

M. Adam Kahn, cabinet Foley Hoag LLP, membre du barreau du Commonwealth du Massachusetts,

M. Andrew Loewenstein, cabinet Foley Hoag LLP, membre du barreau du Commonwealth du Massachusetts,

Mme Analia Gonzalez, LLM, cabinet Foley Hoag LLP, admise au barreau de la République orientale de l'Uruguay,

Mme Clara E. Brillembourg, cabinet Foley Hoag LLP, membre des barreaux des districts de Columbia et de New York,

Mme Cicely Parseghian, cabinet Foley Hoag LLP, membre du barreau du Commonwealth du Massachusetts,

M. Pierre Harcourt, doctorant à l'Université d'Edimbourg,

M. Paolo Palchetti, professeur associé à la faculté de droit de l'Université de Macerata,

comme conseils adjoints ;

Mme Alicia Torres, directrice nationale de l'environnement au ministère du logement, de l'aménagement du territoire et de l'environnement de la République orientale de l'Uruguay,

M. Eugenio Lorenzo, conseiller technique à la direction de l'environnement du ministère du logement, de l'aménagement du territoire et de l'environnement de la République orientale de l'Uruguay,

Mr. Stephen C. McCaffrey, Professor at the McGeorge School of Law, University of the Pacific, California, former Chairman of the International Law Commission and Special Rapporteur for the Commission's work on international watercourses,

Mr. Alberto Pérez Pérez, Professor at the Faculty of Law of the University of the Republic, Montevideo,

Mr. Paul S. Reichler, Foley Hoag LLP, Member of the Bars of the United States Supreme Court and the District of Columbia,

as Counsel and Advocates;

Mr. Marcelo Cousillas, Legal Counsel at the National Directorate for the Environment, Ministry of Housing, Territorial Planning and Environment of the Eastern Republic of Uruguay,

Mr. César Rodriguez Zavalla, Chief of Cabinet, Ministry of Foreign Affairs of the Eastern Republic of Uruguay,

Mr. Carlos Mata, Deputy Director of Legal Affairs, Ministry of Foreign Affairs of the Eastern Republic of Uruguay,

Mr. Marcelo Gerona, Counsellor of the Embassy of the Eastern Republic of Uruguay in the Kingdom of the Netherlands,

Mr. Eduardo Jiménez de Aréchaga, Attorney at law, admitted to the Bar of the Eastern Republic of Uruguay and Member of the Bar of New York,

Mr. Adam Kahn, Foley Hoag LLP, Member of the Bar of the Commonwealth of Massachusetts,

Mr. Andrew Loewenstein, Foley Hoag LLP, Member of the Bar of the Commonwealth of Massachusetts,

Ms Analia Gonzalez, LLM, Foley Hoag LLP, admitted to the Bar of the Eastern Republic of Uruguay,

Ms Clara E. Brillembourg, Foley Hoag LLP, Member of the Bars of the District of Columbia and New York,

Ms Cicely Parseghian, Foley Hoag LLP, Member of the Bar of the Commonwealth of Massachusetts,

Mr. Pierre Harcourt, PhD Candidate, University of Edinburgh,

Mr. Paolo Palchetti, Associate Professor at the School of Law, University of Macerata,

as Assistant Counsel;

Ms Alicia Torres, National Director for the Environment at the Ministry of Housing, Territorial Planning and Environment of the Eastern Republic of Uruguay,

Mr. Eugenio Lorenzo, Technical Consultant for the National Directorate for the Environment, Ministry of Housing, Territorial Planning and Environment of the Eastern Republic of Uruguay,

M. Cyro Croce, conseiller technique à la direction de l'environnement du ministère du logement, de l'aménagement du territoire et de l'environnement de la République orientale de l'Uruguay,

Mme Raquel Piaggio, bureau de la gestion des eaux (O.S.E.), consultante technique à la direction de l'environnement du ministère du logement, de l'aménagement du territoire et de l'environnement de la République orientale de l'Uruguay,

M. Charles A. Menzie, PhD., Principal Scientist et directeur d'EcoSciences Practice chez Exponent, Inc., à Alexandria, Virginie,

M. Neil McCubbin, Eng., Bsc. (Eng), 1st Class Honours, Glasgow, Associate of the Royal College of Science and Technology, Glasgow,

comme conseillers scientifiques et experts.

Mr. Cyro Croce, Technical Consultant for the National Directorate for the Environment, Ministry of Housing, Territorial Planning and Environment of the Eastern Republic of Uruguay,

Ms Raquel Piaggio, Water Management Administration — O.S.E. — Technical Consultant for the National Directorate for the Environment, Ministry of Housing, Territorial Planning and Environment of the Eastern Republic of Uruguay,

Mr. Charles A. Menzie, PhD., Principal Scientist and Director of the EcoSciences Practice at Exponent, Inc., Alexandria, Virginia,

Mr. Neil McCubbin, Eng., BSc. (Eng), 1st Class Honours, Glasgow, Associate of the Royal College of Science and Technology, Glasgow,

as Scientific Advisers and Experts.

The VICE-PRESIDENT, Acting President: Veuillez vous asseoir. L'audience est ouverte. La Cour se réunit pour entendre les arguments de l'Uruguay mais avant de donner la parole au conseil de l'Uruguay, je souhaite indiquer que la Cour a été saisie hier en fin d'après-midi d'un courrier par lequel l'agent de l'Argentine a soulevé certaines questions quant au statut de M. Neil McCubbin, membre de la délégation uruguayenne, qui est appelé à prendre la parole aujourd'hui. Une copie de cette lettre a été communiquée à l'autre Partie qui par lettre reçue ce matin, a notamment précisé que M. McCubbin prendra la parole comme avocat et non comme un expert témoin au sens de l'article 57 du Règlement. La Cour traitera ainsi sa déclaration. Dans sa réponse, l'agent de l'Uruguay a aussi relevé que M. Howard Wheater et M. Juan Carlos Colombo agissaient dans une qualité similaire pour l'Argentine, la semaine passée. I shall now give the floor to Mr. Reichler, Counsel for Uruguay, to continue with his presentation. You have the floor, Sir.

Mr. REICHLER: Good morning, Mr. President, Members of the Court. I will resume today where I left off yesterday by discussing the origin of the algal bloom that was observed on 4 February 2009.

THE PERFORMANCE OF THE PLANT: ARGENTINA'S EVIDENCE (PART II)

I. THE ALGAL BLOOM OF 4 FEBRUARY 2009

1. [Slide 1.] The Court will likely recall this satellite photo from yesterday[1]. For your convenience, it is in today's judges' folder at tab 2. It depicts the situation in the Uruguay river and Ñandubaysal Bay on 2 February 2009. In particular, it depicts in red the presence of significant chlorophyll abundances, indicating significant algal presence in Ñandubaysal Bay, fed by the Gualeguaychú river in Argentina. And it shows the transport of these chlorophyll and algal abundances from the Bay into the Uruguay river along the Argentine coast just downstream from the Bay. It also shows that on 2 February 2009, two days before the algal bloom, there was no significant presence of chlorophyll or algae at or near the Botnia plant. The section of the river

[1]CBERS-2B (2 Feb. 2009, 14:02). See also DINAMA Algae Bloom Report (July 2009), p. 10, fig. 2.5, (Spanish original available via links under the heading) "Floración de cianobacterias en el río Uruguay el 04/02/2009" at http://www.mvotma.gub.uy/dinama/index.php?option=com_content&task=view&id=122&Itemid=17.
Translation submitted to the Court on 14 Sep. 2009.

adjacent to Botnia is depicted in blue, connoting the lowest level of chlorophyll and algae. What this satellite photo shows is that, on 2 February 2009, the pre-conditions for an imminent algal bloom were present in Ñandubaysal Bay, but not in the section of the river adjacent to the Botnia plant.

2. As I said yesterday, the satellite photo confirms the data produced by Argentina regarding the water chemistry in the Bay and in the river in the period leading up to the algal bloom of 4 February. To summarize very quickly, the water chemistry data collected by Dr. Colombo established the following, as of late January 2009:

— first, the concentrations of phosphorus and nitrogen in the areas of the river allegedly influenced by the Botnia plant were unchanged by the plant, during and after its first 15 months of operation;

— second, the concentrations of phosphorus and nitrogen in the areas of the river adjacent to the plant were low, relative to other areas of the river and Ñandubaysal Bay, and did not increase in the period leading up to the algal bloom;

— third, Dr. Colombo's water chemistry tests showed that chlorophyll, and therefore algae, were continuously low in the areas of the river allegedly affected by the plant, and that they, too, had not increased in the period leading up to the algal bloom;

— fourth, by contrast, total phosphorous concentrations, soluble reactive phosphorous concentrations, and chlorophyll levels indicative of algae were significantly higher in Ñandubaysal Bay during the period of Dr. Colombo's study than they were in areas of the river adjacent to the plant;

— fifth, in the period preceding the algal bloom, SRP — soluble reactive phosphorus — and chlorophyll were over 350 per cent higher in the Bay than in the river; and finally,

— sixth, for all of the previous reasons, the conditions necessary for an algal bloom were *not* present near the Botnia plant at the beginning of February 2009, but they *were* present in Ñandubaysal Bay.

3. The satellite photo shows more. As we discussed yesterday (CR 2009/16), it shows other areas of the river, upstream from the Botnia plant, where conditions for an algal bloom were present on 2 February. These areas, like Ñandubaysal Bay, are depicted in red, indicative of high

concentrations of chlorophyll and algal proliferations. So what the photo tells us as a whole is that, while conditions were not present for the origination of an algal bloom in front of the Botnia plant on 2 February, the necessary conditions *were* present both upriver from the plant, and in Ñandubaysal Bay.

4. So now, we can attempt to answer the question, on the basis of the *evidence*, including especially Argentina's *own* evidence, of the origin of the algal bloom that was observed on 4 February. That evidence shows that the algal bloom originated either upstream from the plant, where the conditions for it were ripe, or downstream from the plant, in Ñandubaysal Bay, where the conditions were also ripe — depending on which way the river was flowing between 2 February and 4 February.

5. So, which is it? Which way was the river flowing between 2 February and 4 February 2009?

6. Last week, Professor Sands told us at least twice that the Uruguay river was flowing in reverse between 2 and 4 February, from downstream to upstream[2]. If he was right, then he has made the case that the algal proliferation that bloomed on 4 February originated in Ñandubaysal Bay, from where it was transported upriver, by the reverse flow, to the site of the Botnia plant. But was he right? Mr. President, it would certainly be convenient for Uruguay if he were. If the river flowed in reverse between 2 and 4 February, it would indicate that the algal bloom observed on the latter date had its source in Ñandubaysal Bay, which Argentina has repeatedly told us is not affected by the effluents from the Botnia plant in its scientific and technical study[3]. For this reason, it is very tempting for Uruguay to simply say we agree with Professor Sands, admit that this *one* time he got the evidence right, thank him for doing so, and close the book on the 4 February algal bloom. But there are weaknesses in his argument that we must acknowledge.

---

[2]For example, CR 2009/12, pp. 42-43, paras. 14 and 15 (Sands).

[3]See Argentina Scientific and Technical Report, Chap. 3.2, para. 4.1.2 (arguing that Argentina's scientists were able "to clearly set the bay apart, as it acts as an ecosystem that is relatively detached from the Uruguay river" and that the data "shows that the bay is an environment that is detached from the short term fluctuations of the river"), para. 4.3.1.2 (pointing to data that "reinforces the interpretation that the bay is an environment that is relatively detached from the river").

7. Professor Sands told us last Tuesday that Argentina had provided "detailed evidence" of the direction of the river's flow based on "actual, continuous monitoring . . . "[4]. He said that this had been provided "for a full year of monitoring"[5]. Well, not quite. To be sure, he attempted to illustrate the comprehensiveness and professionalism of Argentina's measuring of the river current by using two charts taken from Chapter 2 of Argentina's Scientific and Technical Study. These charts portrayed daily flow data for July 2008 and for February 2009. Except that the chart he displayed for February 2009 did not cover the entire month. It covered only from 10 February to 28 February. [Slide 2.] Here, and also at tab 3 of the judges' folder, are Argentina's charts for January and February 2009 — not July 2008 and February 2009 but January and February 2009. These are taken from Chapter 2 of their study. The chart for February is the same one Professor Sands displayed in court last Wednesday. As you can see, when the two charts are put together, as February follows January, there is no flow data for the period between 27 January and 9 February, the period leading up to and surrounding the 4 February algal bloom, during which Argentina insists the river flowed in reverse.

8. Naturally, this critical gap in Argentina's data aroused our curiosity. So we went back and reviewed their flow data underlying the charts. We found that they had recorded flow data from their automatic current meter, which Professor Sands proudly described last week[6], covering the entire 131-day period between 20 November 2008 and 30 March 2009, except for the most critical span of 14 days. They had no data for those days. Did they simply fail to collect any actual measurements on those 14 days? Did they lose them? Or did they have some other reason for not presenting them to the Court?

9. In fact, there is good reason to question the utility of *all* the flow measurements that Argentina *did* submit. Argentina acknowledges that it took all its measurements of current flow from a single point in the river, located "upstream of the Botnia plant on the Argentine side of the navigation channel at kilometre 105"[7]. [Slide 3.] Here, and at tab 4, is the approximate location of

---

[4]CR 2009/12, p. 40, para. 11.

[5]*Ibid.*, p. 41, para. 13.

[6]*Ibid.*, pp. 40-41, paras. 11-13.

[7]Argentina Scientific and Technical Report, Chap. 2, p. 5.

the point where Argentina took its measurements. We say approximate because we do not know the exact location, because Argentina has not disclosed it. As you can see, it is not in the main channel of the river, but in a side channel close to the Argentine shore, where the depth is about 6 metres. The main channel — in white — is across the river, closer to the Uruguayan side, with a depth of more than 20 metres — more than three times deeper. The Botnia plant is not only across the river, but several kilometres downstream from where Argentina took its measurements. The river at this point is nearly 1,500 metres wide. You cannot make any conclusions about the flow of the river, especially a river as wide and as deep as the Uruguay river, from what happens at a single point, especially when that point is at a relatively shallow depth, far removed from the main channel. Professor Sands himself acknowledged that the river flows in different directions at the same time[8]. It is very possible that the current in the shallower water along the Argentine bank was flowing upstream at the same time as the main current of the river, which follows the much deeper main channel, closer to Uruguay, into where the Botnia effluent is discharged, was flowing downstream. That is why nothing can be concluded one way or the other about the direction of the river's flow from Argentina's measurements. And certainly the measurements tell us nothing about what was happening in late January and early February because no such measurements were provided by Argentina.

10. To be sure, Uruguay does not reject the possibility that the river flowed in reverse just prior to the 4 February algal bloom. But there is also the possibility that the river was flowing in its normal downstream direction prior to the algal bloom.

11. Evidence supporting this latter scenario includes the records maintained by Uruguay's State Sanitary Works, OSE by its Spanish acronym, which is responsible for providing potable drinking water to the Uruguayan communities along the Uruguay river. Algae must be removed from the river water by OSE before it is fit to drink. [Slide 4.] If we compare OSE's records, at tab 5, from its water treatment plant around 100 km upstream, in Paysandú, on 26 January 2009, with those from its Fray Bentos plant, just downstream from Botnia, on 5 February, we can see that in Paysandú on 26 January, the concentration of algae in the river water was more than

[8]CR 2009/12, p. 40, para. 10 .

1,732.4 organisms per millilitre[9], which, of course, is substantially higher than the 1,055 recorded in Fray Bentos on 5 February, at the height of the bloom near the Botnia site[10].

12. The upriver origin of most algal blooms in the Uruguay river is further indicated by the historical evidence[11]. Historical studies show that algae proliferation first became a concern in 1979, after the construction of the dam at Salto Grande, more than 240 km upriver from the Botnia plant, and 140 km upriver from Paysandú[12]. According to the authors of a 1982 study, algal blooms were first observed in the Salto Grande reservoir immediately after it filled up and operations began in 1979[13]. The algae, it was written, proliferate in the stagnant waters of the reservoir, especially during the hot summer months of January and February. The dam sends the water with the algae downstream after passing through its turbines or spillway. In summer, to conserve water, less of it is allowed to flow through the dam. These low water flows, together with the high temperatures and bright sunlight of summer, combine to present ideal environmental conditions throughout the entire length of the river for algal blooms. This is well documented in the literature.

Mr. President, with your indulgence, may I point out that a footnote was left out at that point of my speech accidentally. If we could consider this for the compte rendu footnote 30.5, and it should just say "*Ibid.*" because it has been cited previously[14].

The VICE-PRESIDENT, Acting President: Please supply the correction.

Mr. REICHLER: We shall. Thank you, Mr. President.

13. And it is actually the upstream origins of algal blooms on the river that are actually confirmed by Argentina's own Scientific and Technical Study. This is from Chapter 4 of study at page 115 — of Argentina's study at page 115:

---

[9]DINAMA Algae Bloom Report, Ann. 1.

[10]*Ibid.*, Ann. 2. Also available in Uruguay's Comments on New Documents, 15 July 2009, Ann. C4.

[11]OSE Report on Cyanobacteria, Uruguay's Comments on New Documents, 15 July 2009, Ann. C7 ("The bloom in the first months of 2009 coincides with the typical behavior of algae in transit from the north to the south, which is historically expected in the Uruguay River").

[12]DINAMA Algae Bloom Report, pp. 14-16.

[13]*Ibid.*, pp. 14-15 (citing R. Quirós & L. Lucchini, "Características limnológicas del Embalse de Salto Grande, III: Fitoplancton y su relación con parámetros ambientales," *Rev. Asoc. Cienc. Nat. Litoral*, 13: 49-66).

[14]*Ibid.*

> "Algal blooms may appear in the Uruguay River during the warm season. These blooms are produced by explosive growth of algae, particularly cyanobacteria, responding to nutrient enrichment, mainly phosphate, among other compounds present in detergents and fertilizers. Buoyant cyanobacteria may also produce large aggregates in the river surface, which subject to wind-driven displacements, usually concentrate forming visible patches . . ."

Chapter 4 of Argentina's Study further states, at page 37:

> "The presence of potentially toxic Cyanobacteria species is a common phenomenon . . . in many water systems all around the world . . . and for this reason they are continuously monitored by institutional organizations . . . In the Uruguay River, [I am continuing with my quote from Argentina's Study, 'in the Uruguay river'] their presence is also favored by the Salto Grande Reservoir . . ."

as I mentioned a few moments ago, and which I said, is where most algal blooms originate, more than 240 km upstream from the Botnia plant[15].

14. Dr. Colombo told the Court on Wednesday of a "higher abundance" of algae in the area surrounding the Botnia plant in January 2009[16]. This, of course, contradicted his *own* study, in Chapter 3 of the report, which found low levels of chlorophyll at all the so-called Botnia sites in January 2009 — which I discussed yesterday — and, in fact, that the lowest levels of chlorophyll of all, of all the sites he studied, were those he called the Botnia influence sites[17]. Where there is no chlorophyll, there is no algae. Perhaps he was referring on Wednesday to a different chapter of the report, Chapter 4, where the authors claim to have found elevated levels of cyanobacteria at some, but not all, of the Botnia sites on one occasion. Significantly, in that study, which you can find at page 82 of Chapter 4, the cyanobacteria level at Botnia site 3, the one closest to and most directly influenced by the plant, was very low — even under their own study — significantly lower than at both sites in Ñandubaysal Bay. There were more elevated levels only at the two so-called Botnia sites directly in the path of sewage discharges from Fray Bentos and Gualeguaychú. I showed these test sites in a slide yesterday. All that this experiment proved is that the discharge of human waste and other sewage brings a lot of bacteria, algae and other undesirable substances into the river. That, Mr. President is undisputed. But it says nothing about the effluent from the Botnia plant itself.

---

[15]DINAMA Algae Bloom Report, p. 16.

[16]CR 2009/14, p. 44, para. 44 (Colombo).

[17]Argentina Scientific and Technical Report, Chap. 3.1, p. 31, table 8 and Chap. 3.2, para. 3.2.3, table 8.

15. The evidence all points to the same conclusion. The algal bloom of 4 February 2009 did *not* originate at the site of the Botnia plant and was *not* caused by emissions from the Botnia plant. In his own chapter of the Scientific and Technical Study, Dr. Colombo had this to say about the cause of the algal bloom: "The cyanobacteria bloom from February 4th . . . occurred at times when nitrates are lower and the temperature is very high, both factors that favor the development of these organisms specially the nitrogen-fixing ones."[18] Where does he say the nitrates were lower on 4 February, such that the development of cyanobacteria algae was favoured? In Ñandubaysal Bay, that is where he says the conditions were favourable, not in the waters adjacent to the Botnia site[19].

II. EFFLUENTS OTHER THAN PHOSPHOROUS AND NITROGEN

16. Mr. President, I will conclude the part of my discussion on water chemistry and water quality which I began yesterday by addressing, very briefly, the effluents other than phosphorus and nitrogen of which Argentina complained last week. Just as with phosphorus and nitrogen, Argentina has produced no evidence that any of these effluents has failed to disperse quickly and completely, and wash away. Just as with phosphorus and nitrogen, Argentina has failed to show *any* increase in concentration levels for *any* of these effluents in areas of the river allegedly affected by the Botnia plant. What are these other effluents? Dr. Colombo mentioned two, in his speech last Wednesday: sodium and AOX, the presence of which had increased, he told the Court, in the area of Botnia's influence[20]. This was very surprising to us. I cannot say, in the case of Dr. Colombo, that he does not know the evidence. But it appears, in *this* instance, he forgot some of it. Apparently he did not review his own study very carefully before addressing the Court about it. Had he done so, he would have come across the following language, from Chapter 3, page 22: "[T]he observed sodium levels do not imply any risk. Moreover, sodium concentrations registered in the Bellaco Bay ([site]N6) are higher due to the influence of the Gualeguaychú River discharge." Bellaco Bay, as we discussed yesterday, is a part of Ñandubaysal Bay. Same Chapter, pages 27 and 28: AOX is "lower than the German standard of 25 micrograms [per litre]". And: "AOX presents a series of oscillations . . . with several peaks . . . and a general increasing trend this

[18] *Ibid.*, p. 25.

[19] *Ibid.*, p. 24.

[20] CR 2009/14, p. 45, para. 15 (Colombo).

summer, especially in Bellaco Bay ([site]N6) in December 2008."[21] Bellaco Bay, as I just said, is part of Ñandubaysal Bay which, of course, according to Argentina, is *not* influenced by the Botnia plant[22].

17. On Wednesday, Professor Sands ticked off a laundry list of other substances that he said were emitted by the Botnia plant and caused harm to the river[23]. He cited no evidence in support of these allegations. He made no references to concentration levels, either before or after Botnia started operating, and neither Dr. Colombo nor Dr. Wheater saw fit to mention any of these effluents as problems. So I do not think I need to take up the Court's time in responding, at least in this round, except in the case of two of those substances: iron and arsenic. According to Argentina's Scientific and Technical Study, iron, which is one of the most common elements in the earth's crust, is one of "the natural components [the natural components] of aquatic ecosystems and essential elements for life . . .". Complaining about iron, the main sources are "atmospheric dust, sediments and soils deriving from the earth's crust erosion"[24]. So much for iron. We all understand — we all understand — why Professor Sands mentioned arsenic. Emotional impact, not evidence. It was an obvious scare tactic. In fact, it would not be a huge exaggeration to say that quite a bit of Argentina's presentation last week was one enormous scare tactic. Dire warnings that if the Court does not shut down this plant, it will not only kill the 1975 Uruguay River Statute, but the entire edifice of international environmental law. But no evidence to support these threats. The Court will undoubtedly take note, when it reads the compte rendu, of the vast number — the vast number — of factual assertions made by Professor Sands and his colleagues that have no citations, no footnotes, to any of the evidence in the record of this case. These are all empty statements, of little value. And Professor Sands's reference to arsenic is typical[25].

---

[21]Argentina Scientific and Technical Report, Chap. 3.2, p. 28.

[22]See Argentina Scientific and Technical Report, Chap. 3.2, para. 4.1.2 (arguing that Argentina's scientists were able "to clearly set the bay apart, as it acts as an ecosystem that is relatively detached from the Uruguay river" and that the data "shows that the bay is an environment that is detached from the short term fluctuations of the river"), para. 4.3.1.2 (pointing to data that "reinforces the interpretation that the bay is an environment that is relatively detached from the river").

[23]CR 2009/15, p. 19, para. 18 (Sands).

[24]Argentina Scientific and Technical Report, Chap. 3.2, para. 4.4.4.

[25]CR 2009/15, p. 20, para. 18 (Sands).

Although he does have a footnote there, it is to a report by Dr. Wheater written before the Botnia plant started operating. There are no citations to Dr. Colombo's study, or to any actual or even contrived measurements of arsenic emissions by Botnia, or arsenic concentrations anywhere in the river. In fact, we were unable to find any mention of arsenic in Dr. Colombo's study. He certainly did not identify it as a problem. And there is an explanation for that. DINAMA's testing of water chemistry confirms that the Botnia plant emits no measurable levels of arsenic[26].

18. We also heard last week about nonylphenols, and dioxins and furans. Since these substances are alleged to have caused harm to aquatic organisms, including fish, I will address them in connection with those allegations. I turn to them now.

III. CLAMS

19. Dr. Colombo said on Wednesday (CR 2009/14) that the Botnia plant has harmed clams[27]. In particular, he said that effluents from the plant have caused clams to lose lipids, that is, to lose fats. He said that this is due to Botnia's emission of nonylphenols, which supposedly interfere with the clam's metabolic processes[28]. Mr. President, allow me to inform you how Dr. Colombo and Argentina came to this conclusion.

20. First, they dug up the clams from their natural habitat, which is in the sediments, that is, the mud, at the bottom of the river near the Argentine shore[29]. This is where the clams live, because this is where their food source is located. Dr. Colombo writes, in Chapter 3 of the study, that the clams feed off the organic detritus in the river's sediments through "filter and pedal feeding"[30]. Dr. Colombo's assistants pried the clams open and measured how much fat they had in

---

[26]Uruguay's Submission of New Documents, 30 June 2009, Ann. S2, DINAMA Performance Report for the First Year of Operation of the Botnia Plant and the Environmental Quality of the Area of Influence (May 2009), p. 8/33, table 2; DINAMA 2009 Water Quality Report, p. 18, para. 4.1.10.1. Original Spanish version available via a link entitled "Informe Agua Semestre Ene-Jun 2009" at http://www.mvotma.gub.uy/dinama/index.php?option=com_docman&Itemid=312; DINAMA July 2009 on Botnia's Environmental Performance, p. 5, table 2 and p. 15, table 4, original Spanish version available via a link entitled "Informe Emisiones Semestre Nov. 2008-May 2009" at http://www.mvotma.gub.uy/dinama/index.php?option=com_docman&Itemid=312. Where relevant, translations submitted to the Court on 14 September 2009.

[27]Argentina Scientific and Technical Report, Chap. 3.1, p. 4, and Chap. 3.2, paras. 1 and 4.7.1.

[28]*Ibid.*, Chap. 3.1, p. 4, and Chap. 3.2, para. 4.7.1.

[29]*Ibid.*, Chap. 3.1, p. 10, and Chap. 3.2, para. 4.7.1.1.

[30]*Ibid.*, Chap. 3.2, para. 4.7.1.1 (indicating that clams normally employ "filter and pedal feeding on detritus on the surface sediments in the beach").

them. Then they dug up some more, put them in a net bag and suspended them from a buoy in the current, under water, above the river bottom[31]. [V-32.] Here are two images illustrating what they did. These come from Chapter 3 of Dr. Colombo's study, and he displayed them to the Court on Wednesday. They are in today's folder at tab 6. As you can see, the clams were left in a suspended state, far removed from their natural habitat — and, especially, from their food source — where they were subjected to constant battering by the river current for months at a time, in some cases up to 180 days[32]. Then they were pried open again and found to have lower fat levels[33]. In other words: they lost weight.

21. Now, this is quite an experiment. The conclusion is as odd as the experiment itself. Dr. Colombo and his team found that the reason the clams lost weight was because something in the water interfered with their metabolism[34]. Apparently they did not consider the possibility that the clams lost weight because, for several months, they had nothing to eat.

IV. NONLYPHENOLS

22. And what was it in the water that Argentina claims to have caused this weight loss in clams? Nonylphenols[35]. Even if we were to accept this unsupported hypothesis, it would still not help Argentina's case, because the Botnia plant does not use nonylphenols in any of its processes, including the cleaning of the plant.

23. Professor Sands pointed out on Monday of last week that Uruguay had never responded to Argentina's concerns about nonylphenols until 15 July of this year, when it submitted the affidavit of Dr. Alicia Torres, the Director of DINAMA[36]. This was a rhetorical exercise by Professor Sands, since he knows, or at least he should know, that Argentina never raised nonylphenols as a concern until it submitted its Scientific and Technical study two weeks earlier, on 30 June.

---

[31] *Ibid.*, Chap. 3.2, para. 3.1, pictures 2 and 5.

[32] *Ibid.*, Chap. 3.2, para. 3.1, picture 2 (indicating that clams were left to "bioaccumulate" for between 0.5 and 6 months).

[33] *Ibid.*, Chap. 3.2, para. 4.7.1.1.

[34] *Ibid.,* Chap. 3.2, para. 4.7.1.1.

[35] *Ibid.*, Chap. 3.1, p. 4.

[36] CR 2009/12, p. 48, para. 24.

24. Professor Sands discussed and parsed the affidavit of Dr. Alicia Torres at some length[37]. In it, she testified that the Botnia plant "does not generate" and "does not use nonylphenol [or] derivative extholixates in any of its production and wood pulp bleaching processes"[38]. Professor Sands tried to read this language as though it were designed to leave open the possibility that Botnia may use nonylphenols in bleaching or cleaning its pulp. There is no such artfulness. Dr. Torres represented to the Court that Botnia does not use nonylphenols in *any* of its processes[39]. The language admits of no ambiguity. It includes bleaching and cleaning of pulp.

25. Argentina claims that it has no knowledge of what chemicals or other substances Botnia uses in its pulp production or its plant cleaning[40]. So how can they say Botnia uses nonylphenols? Their main argument is that Dr. Colombo claims to have found increasing quantities of nonylphenols in the waters adjacent to the plant. He told the Court that he did not find similar increases anywhere else[41]. There is a good reason for this. He does not appear to have looked anywhere else. [V-new.] Here, and at tab 7, are the test results, from his "study" of nonylphenols[42]. The Court will recall that the test sites to the left, up to U1 are upstream control sites. The next three, U2, 3, 4, are the alleged sites of Botnia influence. The next three, N5, N6, I7, are in Ñandubaysal Bay. There are almost no data for any of the three test sites in Ñandubaysal Bay. Were no tests made there? Or were the results so unhelpful to Argentina's claim that they had to be discarded? How can he tell the Court that nonylphenols are higher near the Botnia plant when he has no measurements for anywhere else? How could he know? He certainly has no basis for saying the levels near the Botnia plant increased after Botnia began operating — because he has no water chemistry baseline data of *any* kind. This, as I said earlier, is a major flaw that — as any scientist of his background would surely know — raises serious questions about the reliability of many aspects of his study.

---

[37]CR 2009/12, pp. 49-50, para. 27; CR 2009/15, pp. 17-18, para. 13.

[38]Affidavit of Agr. Eng. Alicia Torres, Director of DINAMA, 13 July 2009, Uruguay's Comments on Argentina's New Documents, 15 July 2009, Ann. C24.

[39]*Ibid*.; emphasis added.

[40]CR 2009/15, p. 16, para. 12 (Sands).

[41]CR 2009/14, pp. 46-48, paras. 18-19.

[42]Biogeochemistry Data table 9 on password-protected Argentine website, available at http://www.mrecic.gov.ar/scientificdata (username: PVA; password: SAyDS).

26. In fact, doubts about Botnia's emission of nonylphenols were raised by Dr. Colombo himself. He tells us, at page 39 of Chapter 3 of the Scientific and Technical study, that modern pulp mills like Botnia's generally do not use or emit nonylphenols. Dr. Colombo even acknowledges that Canadian pulp mills have not used or emitted nonylphenols for the past ten years[43]. The Botnia plant is more modern than those in Canada, and conforms to the latest European Union standards. So why would it use any of these substances?

27. To be sure, there are nonylphenols in the river. Where else could they have come from? Dr. Colombo tells us that too, also in Chapter 3 of the Scientific and Technical study, at page 39. Here he says that nonylphenols are discharged from industrial facilities that produce textiles, leather, metal, oil, polymers, water-based paints, detergents, plasticizers, pesticides, and personal care products[44]. In other words, from exactly the kinds of factories currently operating in the Gualeguaychú Industrial Park, which discharge their effluents every single day into the Gualeguaychú river, and from there directly to Ñandubaysal Bay[45]. No wonder Dr. Colombo did not test for nonylphenols in Ñandubaysal Bay! He would have found them there, at much higher levels than at or near Botnia.

28. Mr. President, standing back for a moment, the entire debate on nonylphenols has a kind of surreal aspect to it. What are we fighting about? Uruguay is convinced that there is no use of them by Botnia. Argentina says it believes there is. At any rate, both Parties agree that Botnia should not use any nonylphenols in its production, cleaning, or any other processes. The two Parties are on the same side of this issue. Is not the solution for both of them to work together to satisfy each other as to whether nonylphenols are being used or not? This matter could have been resolved long ago, if Argentina had come to Uruguay with its concerns when they first arose. Instead, Argentina preferred to hide the data, and save it for use in this lawsuit. But it is never too late for co-operation. If, if, contrary to everything Uruguay believes to be true, Botnia is using nonylphenols, Uruguay will put a stop to it. After all, the water just a short way downstream from

---

[43] Argentina Scientific and Technical Report, Chap. 3.1, p. 39.

[44] *Ibid*., Chap. 3.1, p. 39.

[45] RU, para. 2.82.

the plant is drunk every day by the 20,000 Uruguayans who live in Fray Bentos and whose protection is DINAMA's duty.

V. ROTIFERS

29. I come next to rotifers. These are microscopic organisms. Argentina claims that it found a high percentage of deformed rotifers near the Botnia site[46]. Dr. Colombo's data are so plagued with flaws that they are meaningless. I will reserve further comments on Argentina's methodology and data until the next round, and address the subject then only if Argentina persists in talking about rotifers. But the main point here is that Argentina blames the deformations in rotifers on the nonylphenols supposedly used and emitted by the Botnia plant[47], and Botnia does not use, or emit, nonylphenols.

VI. FISH

30. I come now to fish. Mr. President, Dr. Colombo told the Court on Wednesday that the levels of dioxins and furans in fish have increased since operation of the Botnia plant commenced[48]. But Argentina's argument that the Botnia plant has harmed fish is completely unproven. The "study" on which this opinion is based has absolutely no credibility.

31. To start with, the claimed increase in dioxins and furans in fish is, by Dr. Colombo's own admission, very minor. In his study, in Chapter 3, he acknowledges that, even now, the levels of dioxins and furans in fish that inhabit the Uruguay river are "very low"[49] — indeed, they are so low that, according to Dr. Colombo, a person could safely eat a huge quantity of these fish, more than 100 kg per year, without any risk to his or her health[50].

32. But his study is deeply flawed. The underlying data can only be found by accessing Argentina's password-protected website[51], access to which was provided only in Argentina's

---

[46]CR 2009/12, p. 31, para. 31 (Sands).

[47]Argentina Scientific and Technical Report, Chap. 3.1, p. 4.

[48]CR 2009/14, p. 51, para. 25.

[49]Argentina Scientific and Technical Report, Chap. 3.1, pp. 5 and 45.

[50]*Ibid.*, Chap. 3.1, p. 45.

[51]While Dr. Colombo provided some data on fish testing in his 30 June 2009 Report, no data on dioxins and furans was included. See Argentina Scientific and Technical Report, Chap. 3.2, para. 4.7.2, table 21.

submission of 15 July 2009, and only if you carefully read footnote 16[52]. Combined with the tables presented in Chapter 3 of the study, the online data show that Argentina caught, and tested, 69 fish between November 2007, when the Botnia plant started operating, and August 2008[53], and that it caught and tested another 14 fish between February and April 2009[54]. Thus, a total of 83 fish, according to Argentina's study, were caught and tested during the operational period. Yet, the study's conclusions are based on data from only 23 fish[55]. No data are provided on the other 60 fish that were tested, more than two thirds of the total[56]. Did Argentina lose them? Did they simply forget they had these data when it came time to run the numbers? Or did they decide to omit data unfavourable to their claims?

33. When you exclude the data collected from 60 out of 83 fish, you end up with a very small sample — only 23 fish — and make it possible for even one outlier to dramatically skew the averages. And that is just what happened here with the Sabalo fish we heard so much about last week. One of the Sabalo caught by Argentina was found to have dioxin and furan levels almost 11 times higher than the mean[57]. Only by including this one very sick fish, and excluding some 60 others that, presumably, were not so unwell, was Dr. Colombo able to adjust the average levels in the total population of Sabalo to a sufficient degree to make it appear that dioxins and furans had increased — very slightly, and even then not to unhealthful levels — since the Botnia plant started operating.

34. Of the 23 fish that were chosen for inclusion in the study, the data show that at least 19 were caught in Ñandubaysal Bay[58], which is not influenced by emissions from the Botnia

---

[52]Biogeochemistry Data, table 19 on password-protected Argentine website, available at http://www.mrecic.gov.ar/scientificdata (username: PVA; password: SAyDS).

[53]Argentina Scientific and Technical Report, Chap. 3.2, para. 3.1, tables 3 and 5.

[54]*Ibid.*, Chap. 3.1, p. 11, table 14.

[55]*Ibid.*, Chap. 3.2, para. 4.7.2, table 21; Biogeochemical Data, table 19 on password-protected Argentine website. See also Chap. 3.1, p. 26, fig. 26 (top) (demonstrating that entire fish argument is based on data collected through Aug. 2008, which is covered by Chap. 3.2).

[56]See Argentina Scientific and Technical Report, Chap. 3.1, pp. 45-56; Chap. 3.2, para. 4.7.2; Biogeochemical Data, table 19 on password-protected Argentine website.

[57]Biogeochemical Data, table 19 on password-protected Argentine website (showing that one Sabalo caught in July 2008 exhibited dioxin and furan — PCDD/F — levels of 66.5 pg/g ww when all others exhibited an average of only 6.1 pg/g ww).

[58]Argentina Scientific and Technical Report, Chap. 3.1, p. 11, table 5, and Chap. 3.2, para. 3.1, table 5.

plant[59]. Even the sick Sabalo that skewed the test results was caught in Ñandubaysal Bay[60]. So there is no link at all between the plant and at least 19 of the 23 fish used in Argentina's study. Why were all of these fish swimming in Ñandubaysal Bay? Argentina says the fish "actively search organic hot spots [such] as sewages and industrial effluents constituting a critical pathway of persistent pollutant focalization"[61]. Ñandubaysal Bay certainly fits that description. It is where the industrial effluents from at least 25 factories located in the Gualeguaychú Industrial Park, and the sewage from the city of Gualeguaychú, with more than 75,000 inhabitants arrive, courtesy of the Gualeguaychú river[62].

35. So much for fish. But there is more to say about dioxins and furans. Mr. President, my colleague Professor Boyle has told you that DINAMA, and EcoMetrix, the consultants to the IFC, have concluded, based on the monitoring data, that Botnia does not discharge dioxins and furans into the Uruguay river. Yet, you heard Professor Sands and his colleagues say on numerous occasions last week that dioxins and furans in the waters near the Botnia site have increased since the plant started operating. They said these pollutants spill out of the plant's discharge pipe, and even from its smokestacks, and somehow end up in the river[63]. Well, I will say it again, Professor Sands just does not know the evidence. In this case, perhaps, he can be excused, because there is no evidence to know. Professor Sands's remarks in this regard, like his factual assertions to which I responded previously, are not cited to the record, as the Court may confirm by reference to the compte rendu for last Thursday, at page 20. Argentina has presented no evidence whatsoever — absolutely none — on levels of dioxins and furans in the water, in any part of the water, much less any contributions of dioxins and furans by the Botnia plant[64]. If they have taken

---

[59]*Ibid.*, Chap. 3.2, para. 4.1.2 (arguing that Argentina's scientists were able "to clearly set the bay apart, as it acts as an ecosystem that is relatively detached from the Uruguay river" and that the data "shows that the bay is an environment that is detached from the short term fluctuations of the river"), para. 4.3.1.2 (pointing to data that "reinforces the interpretation that the bay is an environment that is relatively detached from the river").

[60]See Biogeochemistry Data, table 19 on password-protected Argentine website (indicating that the sick Sabalo was caught in July 2008); Argentina Scientific and Technical Report, Chap. 3.2, para. 3.1, table 5 (illustrating that all fish caught after Nov. 2007 and Aug. 2008 were caught in Ñandubaysal).

[61]Argentina Scientific and Technical Report, Chap. 3.1, p. 5.

[62]CMU, Vol. X., Ann. 224, p. 40.

[63]For example, CR 2009/15, para. 19 (Sands).

[64]See Argentina Scientific and Technical Report, Chap. 3.1, pp. 13 and 43-46 (establishing that only sediments and fish were tested for dioxins and furans).

any measurements of dioxins and furans in the water, they have not supplied them to the Court. At least not yet.

36. Perhaps they will somehow appear between now and next week on the special website created by the Argentina Foreign Ministry especially for this case, and hence qualify, in Argentina's interpretation, as "readily available documents", and therefore admissible evidence, under Article 56 (4) of the Court's Rules. Professor Sands criticized Uruguay last week for its reliance on official DINAMA monitoring reports[65], which were released to the public at a press conference, reported on extensively in the press, including the Argentine press, and published on DINAMA's regular website, as is the custom with all such reports, more than a month before these hearings began. Due to the public nature of these reports, and their extensive coverage in the Argentine press[66], there can be no doubt that Argentina's team, if not Professor Sands himself, have had them in their possession for a long time. In fact, Argentina's specially created website includes a response to these very documents, confirming Argentina's timely access to them.

37. Professor Sands said that Argentina would "follow" Uruguay's example in its use of readily available documents[67]. "Follow"? Many of the documents you saw last week, especially as used by Dr. Colombo and Dr. Wheater, were seen by our side for the first time when they flashed up on the video screen. It turns out they were placed on this special website created especially for this case by the Argentine Foreign Ministry — the URL is: http://www.mrecic.gov.ar/publicdocuments/. They were placed on this special website, some of them, on 11 and 12 September, the weekend before these hearings began. Now, in order to access the site, for which, as of last week, there was no link from any other Argentine Government website, you would have to know in advance of the website's existence and you would have to

---

[65]CR 2009/14, pp. 53-54, para. 2 (Sands).

[66]For example, *Diario El Argentino*, "Report without surprises and with a prize for Botnia: The cellulose plant of Finnish company Botnia, whose entry into operation led to the worst confrontation in decades between the governments between the governments of Uruguay and Argentina, has an 'excellent' environmental performance, according to an official report released this Monday" (11 Aug. 2009), original Spanish version available at http://www.diarioelargentino.com.ar/notas.php?id=64378; *Diario La República*, "Effluent Loads Diminish" (11 Aug. 2009), original Spanish version available at http://www.larepublica.com.uy/politica/376125-bajan-vertidos-de-efluentes; *Diario El Telégraf*o, "According to Monitoring Committee: Botnia complies with environmental standards and improves performance" (11 Aug. 2009), original Spanish version available at http://www.eltelegrafo.com/index.php?seccion=locales&fechaedicion=2009-08-11#18427. Translations were submitted to the Court on 14 Sep. 2009.

[67]CR 2009/14, p. 54, para. 2 (Sands).

know its exact URL, which was never provided to Uruguay until we saw the documents last Monday. In other words, this specially created Argentine website is not readily accessible, except to the members of Argentina's team. The website bears this explicit warning:

> "The data and materials cannot be used for purposes other than the proceedings before the International Court of Justice in the 'case concerning *Pulp Mills on the River Uruguay (Argentina* v. *Uruguay)*', without express written permission from the Argentine Secretariat of Environment and Sustainable Development (Secretaría de Ambiente y Desarrollo Sustentable). Any unauthorized use by any person or entity, for any reason, will render them responsible under the law."[68]

Readily accessible? Only if you know the website exists. Only if you had the URL and only if you want to risk prosecution in Argentina. Despite this, Mr. President, we welcome Professor Sands's statement that Argentina is committed to full transparency in these proceedings[69].

38. But the issue of whether a party before the Court can place self-serving documents on a non-disclosed website of its own on the very eve of oral hearings, two days before they begin, or even during the hearings themselves, and then feel free to use them as "readily available documents" may be one the Court might wish to think about. What was done last week by Argentina is already in the record. But Uruguay would certainly object if Argentina were to place any new documents on its restricted-access website during the course of these oral hearings, and attempt to use them as "readily available documents" in the second round.

39. Mr. President, as I said a few moments ago, Argentina has submitted nothing on the presence of dioxins and furans in the water. They have only conducted a study of dioxins and furans in *sediments*[70]. Dr. Colombo described it last Wednesday. But what he neglected, apparently, to tell the Court is that all the sediments he tested, or at least all the ones he reported on in the 600-page study, were from Ñandubaysal Bay[71]. None of the sediments that formed the basis for Argentina's claims of increased accumulation rates[72] were from the river proper, let alone the

---

[68]See http://www.mrecic.gov.ar/publicdocuments/index_en.php (last visited on 21 Sep. 2009).

[69]CR 2009/14, p. 54, para. 2 (Sands).

[70]Argentina Scientific and Technical Report, Chap. 3.1, pp. 4-5 and 43-44.

[71]See Argentina Scientific and Technical Report, Chap. 3.1, p. 44 ("The analysis of a 45 cm long sediment cores *[sic]* collected in 2006 *in station N6* was carried out so as to confirm the temporal increasing trend observed in the superficial sediments. This place *in the Bellaco Bay* is extremely stable . . . These data [from the core sample] were complemented with those of superficial sediments collected *in Bellaco Bay (N6)* from November 2007 to February 2009. The results show that the accumulation rate of PCDD/F in sediments multiplied by 22 times at present . . ."); emphasis added.

[72]CR 2009/12, p. 48, para. 23 (Sands).

part of the river allegedly influenced by the Botnia plant[73]. Even so, Dr. Colombo concludes in Chapter 3 of the study that, although sediments in Ñandubaysal Bay show increasing levels of dioxins and furans, these still remain "very low" and "lower than the reference values of the Canadian Sediment Quality Guidelines"[74]. But more important, this is all confined to Ñandubaysal Bay, which Dr. Colombo tells us repeatedly throughout his study, is not affected by the Botnia plant[75].

40. In sum, Mr. President, distinguished Members of the Court, Argentina has submitted no evidence — no evidence — that the Botnia plant has contributed any dioxins or furans, in *any* amounts — either to the water or the sediments of the Uruguay river.

CONCLUSIONS

41. Mr. President, I have come to the end of what I truly regret has been a very long speech. I am sure it seemed even longer to you, and your distinguished colleagues on the Court, than to me. Although I am extremely grateful for the time and patience you have extended to me, I apologize for consuming so much of both. Uruguay is aware that it is not customary for a single speaker to remain at this podium for such a long time. We hope you will forgive us for making the decision that it might prove to be more helpful to the Court if we were to address Argentina's evidence on harm to the river and to aquatic species, in a single speech, and by a single speaker. It is unfortunate that you had to receive it from one with an infelicitous American — in fact worse yet New York — accent. For that I apologize, as well.

42. I will not burden the Court with lengthy conclusions. I will emphasize only these points.

43. The evidence shows that Uruguay carefully, deeply and correctly assessed the suitability of the Fray Bentos site for a pulp mill of Botnia's magnitude, starting long before construction of the mill was authorized. Uruguay's analysis of site suitability included, in particular, a detailed and highly sophisticated analysis of river flow, including reverse flow and velocity. Uruguay

---

[73] *Ibid.*

[74] Argentina Scientific and Technical Report, Chap. 3.1, p. 43.

[75] See Argentina Scientific and Technical Report, Chap. 3.2, para. 4.1.2 (arguing that Argentina's scientists were able "to clearly set the bay apart, as it acts as an ecosystem that is relatively detached from the Uruguay river" and that the data "shows that the bay is an environment that is detached from the short term fluctuations of the river"), para. 4.3.1.2 (pointing to data that "reinforces the interpretation that the bay is an environment that is relatively detached from the river").

determined that in assessing the capacity of the river to accept Botnia's effluents, it should presume a very conservative reverse flow frequency of 29 per cent. It calculated that at that frequency, and with equally conservative presumptions about flow velocity, the river could safely accept all of Botnia's effluents without risk of *any* harm, let alone significant harm, to water quality or aquatic species, including fish. Uruguay shared all of its information, calculations, analyses, assessments and conclusions with Argentina in timely fashion, during the 2005 GTAN consultations, before construction of the plant was authorized. The IFC and its independent experts agreed in all respects with Uruguay's conclusions in these regards.

44. After more than 18 months of operation, the Botnia plant has not harmed water quality in any respect. In particular, its effluents have not increased the concentration levels of phosphorus or nitrogen, or any of the other substances mentioned by Argentina. As Uruguay and the IFC and its independent experts predicted, all of these effluents have been quickly diluted, dispersed and washed away.

45. The algal bloom of 4 February 2009 was *not* caused by the Botnia plant.

46. The Botnia plant does *not* use nonylphenols in any form or for any purpose.

47. The Botnia plant has *not* harmed or affected aquatic organisms. In particular, it has *not* affected clams or rotifers or fish, as claimed by Argentina.

48. The Botnia plant has *not* added any dioxins or furans to the waters of the Uruguay river.

49. Mr. President, on behalf of Uruguay, I respectfully submit that these are the *only* conclusions the evidence that is before you — including and especially Argentina's own evidence — permits.

50. I thank you again for your time and patient attention. Uruguay's next speaker, with your permission, Mr. President, will be Mr. Neil McCubbin. He will be speaking as a member of Uruguay's delegation, not as a witness, as you said this morning, in the same manner as Dr. Colombo and Dr. Wheater spoke on behalf of Argentina last week. Mr. McCubbin is an engineer, not a lawyer. He has worked on pulp and paper mills for 44 years, principally focused on their environmental effects and how to improve them. He was retained by Uruguay as a scientific and technical expert and counsellor for the first time in 2009. He will provide Uruguay's answers to some of the technical questions raised by Judge Simma last Thursday (CR 2009/15).

Thank you, Mr. President, and I ask, with your permission, if Mr. McCubbin may be called to the podium.

The VICE-PRESIDENT, Acting President: Thank you, Mr. Reichler, for your presentation. I give the floor to Mr. McCubbin. You have the floor, Sir.

Mr. McCUBBIN: Thank you, Mr. President.

THE SUITABILITY OF THE SITE AND TECHNOLOGY OF THE MILL

1. Mr. President, Members of the Court, it is an honour to appear before you on behalf of Uruguay. I intend to address the evidence on the following three points.

2. First, why the design and environmental performance of the Botnia mill complies with best available techniques (BAT) as defined by the European Union, and why, by any standard, its environmental performance is among the best in the world.

3. Second, why the Uruguay river at Fray Bentos is an excellent location for a twenty-first century pulp mill of the design and size of the Botnia plant.

4. In this section, I will discuss why the mill has not had any adverse effect on the river's quality or its ecological balance. I will also show that the receiving environment is entirely capable of accommodating any phosphorus emitted by this mill.

5. Third, I will address the issue of odour from the plant. I will describe the technology used to minimize odours from the plant and explain why Argentina's evidence of odour is not convincing.

6. In this pleading, I will also answer Judge Simma's questions regarding modern pulp mill technology (CR 2009/15, pp. 67-68).

I. THE DESIGN OF THE PLANT

7. First, let us discuss the design of the plant. The evidence demonstrates that the Botnia plant is a superbly engineered mill. The record is replete with reasons why this is true, and I need

not take the Court's time to review them[76]. The compte rendu that you will receive includes extensive citations.

8. The record further demonstrates that Uruguay thoroughly evaluated the plant's technology before issuing any authorizations[77]. Uruguay's preliminary authorization required the plant to comply with the best available techniques — commonly known as BAT — for environmental protection in pulp manufacture, as defined by the European Union[78].

9. In addition to DINAMA's review and its mandate that the mill comply with BAT, the plant was required to meet the International Finance Corporation's — or IFC's — stringent environmental standards, which include technology performance standards[79]. This was validated by several independent technical firms with real-world experience in working with modern pulp mills, who reported to the IFC[80]. In particular, as a condition of its financing, the IFC required that the plant be independently audited prior to commissioning to verify that it used best available techniques. AMEC, the engineering firm chosen for this audit, has vast experience in pulp mill technology, including the requirements for environmental controls[81]. The IFC charged AMEC with providing "[i]ndependent verification that the mill has been constructed as described in the EcoMetrix Cumulative Impact Study", that is, "to meet EU BAT standards of performance"[82].

10. AMEC's final report confirmed that the Botnia plant is consistent with the European Union's BAT standards in all respects. It could not have been clearer. After conducting a comprehensive review and inspection of the mill, AMEC experts concluded: "[a]ll process

---

[76]See, for example, CMU, paras. 5.12-5.39, 5.54-5.55; RU, paras. 6.31-6.49 EcoMetrix, Cumulative Impact Study, Uruguay Pulp Mills (hereinafter "CIS"), Ann. A, Sep. 2006. CMU, Vol. VIII, Anns. 173, 174; Deardorff and Pryke (Exponent, Inc.), "Available Technologies and Best Environmental Management Practices for Botnia S.A.'s Bleached Kraft Pulp Mill, Fray Bentos, Uruguay", July 2007 (hereinafter "Deardorff Report"); CMU, Vol. X, Ann. 215; Exponent, Inc., "Response to the Government of Argentina's Reply, Facility Design Technology and Environmental Issues Associated with the Orion Pulp Mill, Fray Bentos, Uruguay River, Uruguay", July 2008, (hereinafter "Exponent Report"); RU, Vol. IV, Ann. R83.

[77]CMU, paras. 4.117-4.133.

[78]The IPPC (Integrated Pollution Prevention and Control) Directive 96/61/EC lays down a framework requiring Member States to issue operating permits that contain conditions based on Best Available Techniques (BAT). The European IPPC Bureau (EIPPCB) organizes this exchange of information and produces BAT reference documents (BREFs); CMU, paras. 3.10, 4.34, 5.54; MVOTMA, Initial Environmental Authorisation for the Botnia Plant, 14 Feb. 2005, (hereinafter "AAP"); CMU, Vol. II, Ann. 21.

[79]CMU, paras. 5.38-5.48.

[80]*Ibid.*

[81]RU, paras. 4.19-4.23; AMEC Forestry Industry Consulting, Orion BKP Mill Pre-Startup Audit, Sep. 2007, (hereinafter, "AMEC Report"); RU, Vol. III, Ann. R48.

[82]RU, para. 4.19.

equipment and technology installed or planned to be installed at Botnia-Orion is similar or equivalent to best available technology as described in the CIS". Botnia uses "[m]odern process technologies" that "promise to perform with low emission and world-leading environmental performance"[83]. Argentina has presented no evidence from any independent engineer or scientist with experience or qualifications in modern pulp mill technology or its environmental protection technology to challenge this conclusion.

11. The actual performance of the Botnia mill demonstrates that it complies with BAT standards by a comfortable margin. It performs better than modern mills in Europe, and performs better than other recently-constructed mills around the world. Information about other mills is spelled out in detail in the record[84]. This graph, which is found at tab 8 in your folder, shows the mill's performance against BAT standards for phosphorus, the parameter that Argentina emphasized most last week. Comparisons of performance for other parameters are set out in the record[85]. These show that Botnia's actual performance in 2008 and 2009[86] is fully compliant with BAT international standards — refer to tab 9 of your folder. The same outstanding performance can be seen when one compares Botnia's 2008 and 2009 performance against other advanced, BAT-compliant mills, all of which are in Europe.

12. Last week, Argentina displayed a graph of phosphorous discharges in Finnish mills compared to Botnia in 2008, when the mill operation was still in its start-up phase[87]. Tab 10 in your folder shows a similar graph based on Botnia's performance reported in the most recent six-month report issued by DINAMA. Botnia's total discharge, annualized for 2009, is competitive

---

[83]RU, para. 4.22.

[84]See, for example, Exponent Report, *op. cit.*, Attachment A; EcoMetrix, Inc., "Orion Pulp Mill, Uruguay-Independent Performance Monitoring as Required by the International Finance Corporation — Phase 3: Environmental Performance Review, 2008 Monitoring Year", Mar. 2009, (hereinafter, "Third EcoMetrix Report"), Uruguay's Submission of New Documents, 30 June 2009, Ann. S7; DINAMA Performance Report for the First Year of Operations, May 2009, Uruguay's Submission of New Documents, 30 June 2009, Ann. S2, App. IV, p. 30. See also DINAMA Report on Botnia's Environmental Performance Nov. 2008-May 2009, 22 July 2009, (hereinafter "DINAMA Six Month Report"), p. 18, tables 5 and 6, p. 20, table 9, p. 25. Original Spanish version available via a link entitled "Informe Emisiones Semestre Nov. 2008-May2009" at http://www.mvotma.gub.uy/dinama/index.php?option=com_docman&Itemid=312, (hereinafter, "DINAMA Six Month Report"); translation provided to the Court on 14 September 2009.

[85]Third EcoMetrix Report, *op. cit.*

[86]References to 2009 performance are based on data as reported in the DINAMA Six Month Report and have been annualized to estimate full year 2009 emissions. (DINAMA Six Month Report, *op. cit.*, p. 14, table 4.)

[87]Third EcoMetrix Report, *op. cit.*, p. ES i.

amongst this group, even though the Fray Bentos mill is larger than most Finnish mills. The actual situation is very different from that portrayed by Professor Wheater. This demonstrates the greater environmental efficiency of the modern technology in the Fray Bentos mill.

13. I will now pass on to Judge Simma's questions. His first question began with the statement:

> "With regard to the emissions of *chlorine* into the waters of the River Uruguay, the Court has been told that the Botnia mill uses elemental-chlorine-free (ECF) technology, which is said to still produce significant quantities of persistent organic pollutants, like dioxins and furans. [He goes on to say.] We have also been told that modern mills are capable of eliminating production of those toxins by employing totally-chlorine-free (TCF) technology."

14. Before proceeding to Judge Simma's question, I pause to note that the vast majority of independent scientists have concluded that modern ECF pulp mills do *not* discharge significant quantities of persistent organic pollutants (POPs), including dioxins and furans. This issue was reviewed extensively in the CIS and elsewhere[88].

15. Judge Simma's question asks:

> "Which of the technologies just mentioned is being, or will be, used by Botnia mills located in European Community Member States, particularly in Finland and particularly by the most recently established mills or mills that are currently being built or projected and emit their effluents into rivers?"

16. The response is that Uruguay has confirmed with Botnia, and from publicly available sources, that all of Botnia's mills use ECF technology[89]. There is no public report of any new TCF mills planned or under construction anywhere in the world.

17. Tab 11 in your folder shows that only about 5 per cent of the world's pulp is produced using TCF technology. Further, its use is declining steadily[90].

18. Judge Simma's last question about bleaching technology asked if it is technically possible to convert the Fray Bentos mill from the ECF production technology to TCF. The answer is quite simple: yes. However, such a conversion would offer no measurable environmental

---

[88]CMU, paras. 6.43-6.46; EcoMetrix CIS, *op cit.*, p. 2.25; EcoMetrix CIS, Ann. A, *op. cit.*, pp. A9.1-A9.19; see also, scientific reviews by Darmstadt Technical University, "ECF and TCF Sulfatzellstoffe — ein Vergleich iherer Umwelttbelastungen; Das Papier", T22-T29, 2003; Jukka Tanna, Seppo Ruonala and Marja Ruoppa, "FE350 Environmental effects of effluents from ECF- and TCF-bleaching — project summary", 1999, The Finnish Environment 350, Environmental Protection, p. 60, http://www.ymparisto.fi/default.asp?contentid+84821&lan=EN; and Klaus Niemela, "Effluents from bleached kraft pulp manufacture", 2007, Espoo, Finland www.kcl.fi.

[89]http://www.botnia.com/en/default.asp?path=204,208,234.

[90]http://www.aet.org/science_of_ecf/eco_risk/2008_pulp.html.

benefits and has many environmental disadvantages, including a higher consumption of trees. The TCF process reduces the recyclability of paper. TCF pulp is also lower in quality than ECF pulp, and serves a different and more limited market[91].

19. The overwhelming scientific consensus is that ECF and TCF pulp reduction technologies are equivalent in respect to dioxin and furan production[92]. Both ECF and TCF are considered as best available techniques for pulp manufacture by the European Union. In the mid-1990s, the United States Environmental Protection Agency (EPA) considered regulations to require all United States mills to convert to TCF technology. The Agency decided against such an action[93]. None of the other countries with extensive experience in regulating pulp mills requires TCF technology. None, today. The Canadian province of British Columbia did pass a law requiring TCF conversion of all mills in 1990, but it repealed it, in about 2002, after a study by experts retained by the province showed there would be no environmental benefit[94]. This study showed no environmental benefit of TCF over ECF, over modern ECF.

20. Dioxins and furans are rarely found in ECF mill effluents. Many samples of effluents from the Botnia mill have been analysed for dioxins and furans[95]. On the single occasion when dioxin was detected, the concentration was 0.21 picograms per litre. A picogram is a millionth of a millionth of a gram. This coincided with the detection of dioxins and furans in the river upstream from the mill[96]. EcoMetrix attributed the dioxin in the effluent to the incoming river water, not to the mill[97].

---

[91]CMU, paras. 6.43-6.46.

[92]CMU, paras. 6.43-6.46; see also, Scientific reviews by Darmstadt Technical University, "ECF and TCF Sulfatzellstoffe — ein Vergleich iherer Umwelttbelastungen; Das Papier", T22-T29, 2003; Jukka Tanna, Seppo Ruonala and Marja Ruoppa, "FE350 Environmental effects of effluents from ECF- and TCF-bleaching — project summary", 1999, The Finnish Environment 350, Environmental Protection, p. 60, http://www.ymparisto.fi/default.asp?contentid+84821&lan=EN; and Klaus Niemela, "Effluents from bleached kraft pulp manufacture", 2007, Espoo, Finland, www.kcl.fi.

[93]*Federal Register*, Vol. 63, pp. 18,504-18,751, 15 Apr. 1998.

[94]Reviewed Scientific Basis for AOX Effluent Standard in British Columbia, Carey, John, Hall, Eric, McCubbin, Neil, http://www.llbc.leg.bc.ca/Public/PubDocs/bcdocs/352023/aoxpanelreport.pdf.

[95]EcoMetrix, Inc., "Orion Pulp Mill, Uruguay-Independent Performance Monitoring as Required by the International Finance Corporation — Phase 3: Environmental Performance Review, 2008 Monitoring Year, Mar. 2009, "Third EcoMetrix Report", Uruguay's Submission of New Documents, 30 June 2009, Ann. S7; DINAMA Six Month Report.

[96]Third EcoMetrix Report, *op. cit.*, p. 3.7.

[97]*Ibid*.

21. Judge Simma's second question, part *(a)* reads:

> "From a technical and environmental viewpoint, would it be possible, and would it make sense, to add facilities for tertiary treatment to the wastewater treatment plant of the Botnia mill, or would the carbon emissions involved in the production of the energy necessary for such tertiary treatment undo the advantages of adding this third stage?"

22. It is technically possible to add a tertiary system to *any* plant. However, it would not make environmental sense to do so at Botnia. Although tertiary treatment may allow a marginally lower nutrient discharge, any environmental benefit would be offset by a significant increase in energy consumption, an increase in carbon emissions, sludge generation and chemical use[98]. The great majority of modern pulp mills do not use tertiary treatment because an advanced secondary treatment system can achieve comparable or equal results. In addition, as Dr. Wheater stated last week (CR 2009/12), tertiary treatment systems consume significant quantities of chemicals. It is not necessary to be a chemical engineer to realize that chemicals that go in must come out. At Botnia, a tertiary treatment system would generate a huge quantity of wet sludge. This sludge contains a lot of water, which must be evaporated, consuming significant energy, before the dried sludge can be landfilled or burnt. These and further negative aspects of tertiary treatment are discussed in Uruguay's Counter-Memorial[99] and, separately, by EcoMetrix[100].

23. The performance of Botnia's existing secondary system satisfies all prevailing regulatory standards. Indeed, it even meets the standard urged by Argentina. As Dr. Wheater stated in his expert report[101], a mill in a sensitive environment should have a concentration of phosphorus in its discharge of less than 1 mg per litre. I repeat, 1 mg per litre is Dr. Wheater's criteria. The current discharge concentration at Botnia is one third of that level[102]. I am sure Dr. Wheater will be pleased. Any further reductions in phosphorus by tertiary treatment will not translate into a meaningful environmental benefit because the plant is not affecting nutrient levels in the Uruguay river.

---

[98]CMU, paras. 6.30-6.42; EcoMetrix CIS, *op cit.*, p. A8.13-A8.15.

[99]CMU, paras. 6.30-6.42.

[100]EcoMetrix CIS, *op. cit.*, p. A8.13-A8.14.

[101]CMU, para. 4.89; RA, para. 3.175; Wheater & McIntyre, "Technical Commentary on the Counter-Memorial of Uruguay in the Case Concerning Pulp Mills on the River Uruguay", p. 25, RA, Vol. III, Ann. 44. Argentina does not have a promulgated discharge standard for phosphorus.

[102]DINAMA Six Month Report, *op. cit.*, p. 14.

24. To answer the second part of Judge Simma's question, Uruguay has received confirmation from Botnia that none of its other mills employs tertiary treatment. This is not surprising because tertiary treatment is rarely used for pulp mills[103]. Only two of the 130 kraft mills in North America have tertiary treatment[104]. No mill in Argentina employs tertiary treatment[105]. Nor does the most modern mill in Europe, Zellstoff Stendal, in Germany[106].

25. As Professor Boyle indicated yesterday (CR 2009/16), Botnia and Uruguay are engaged in a project that will be much more effective at removing phosphorus from the river, without the drawbacks of tertiary treatment. He referred to piping the sewage from Fray Bentos to the mill's effluent treatment plant in 2010[107]. At the time of the CIS, it was calculated that so doing would reduce the discharge of phosphorus by Botnia to one quarter its current amount, or better[108].

The VICE-PRESIDENT, Acting President: Mr. McCubbin, I consider that this may be a good moment for a pause, and you will be allowed to continue after the coffee break.

Mr. McCUBBIN: Certainly.

The VICE-PRESIDENT, Acting President: The hearing is suspended for 15 minutes. Thank you.

The Court adjourned from 11.15 to 11.30 a.m.

The VICE-PRESIDENT, Acting President: Please be seated. The hearing is resumed, and I give the floor to Mr. McCubbin to continue. You have the floor, Sir.

Mr. McCUBBIN: Thank you, Mr. President.

---

[103]Deardorff Report, *op. cit.*, pp. 30-31.

[104]*Ibid*.

[105]RU, para. 6.32.

[106]Deardorff Report, *op. cit*., pp. 30-31.

[107]RU, para. 4.93. See also "Botnia Will Treat Effluents", *El Pais,* 9 May 2009, Uruguay's Submission of New Documents, 30 June 2009, Ann. S20.

[108]RU, para. 4.93.

II. FRAY BENTOS IS A SUITABLE LOCATION FOR A PULP MILL LIKE BOTNIA

26. I move this discussion to whether Fray Bentos is a suitable location for a pulp mill like Botnia's. I have just explained why this is an excellent mill, with exceptionally low discharges. The record also contains ample evidence why Fray Bentos is an excellent site for such a mill[109]. I will focus my remarks on the flow in the river, which Argentina indicated last week was a crucial criterion for determining whether effluents can be assimilated.

A. Flow reversal

27. First, I will deal with flow reversal. Last week, Argentina suggested that the reversal of flows in the Uruguay river is a special and unique hydrologic condition that renders the river particularly vulnerable to effluents. Actually, reversal of flow is common as expected in most major river systems. Examples include the Rhine[110], the Seine[111], the Thames[112], and the Hudson[113]. Reversals of flow in rivers can be observed hundreds of kilometres from the river's mouth[114]. There are numerous pulp mills operating on rivers where flow reversals are common, due to effects of wind and tide. Examples of bleached kraft mills like Botnia include Georgia Pacific at Brunswick, Georgia, in the United States; Rayonier at Fernandina Beach in Florida in the United States; Kruger at Trois Rivières in Québec in Canada; Weyerhaeuser at New Bern in North Carolina, United States; Irving in Saint John, New Brunswick, in Canada; and Weyerhauser in Longview in the State of Washington in the United States; Jari in the Amazon, Brazil. All experience flow reversal.

28. Although flow reversals are relevant and do need to be considered, the magnitude of the water flow in the river is a significant factor that differentiates one system from the next and is the

---

[109]CMU, paras. 5.56-5.77; RU, paras. 6.51-6.59.

[110]Oomkensi, E. and Terwindt, J.H.J., "Inshore estuarine sediments in the Haringvliet (Netherlands)", *Geologieen Mijn Bouw*, Vol. 39, 1960, pp. 701-710.

[111]Garnier J., Cebron A., Tallec G., Billen G., Sebilo M. and Martinez A. "Nitrogen behaviour and nitrous oxide emission in the tidal Seine River estuary (France) as influenced by human activities in the upstream watershed", *Biogeochemistry*, Vol. 77, 2006, pp. 305-326.

[112]"The tidal Thames: a guide to recreational users", Port of London Authority, 2005, http://www.pla.co.uk/pdfs/pp/recreational_users_guide.pdf.

[113]Weiss, L. A., Schaffranek, R. W., and de Vries, M. P., "Flow and chloride transport in the tidal Hudson River, New York, in Hydraulic Engineering", *Proceedings of the American Society of Civil Engineers*, Vol. 94 (No. 2), 1994, pp. 1300-1305.

[114]*Ibid*.

key hydrologic parameter used to judge a river's capacity to assimilate effluents and to carry them away. Flow reversal, water passage and flushing can occur simultaneously, as Mr. Reichler showed earlier. Indeed, this is the manner in which most major rivers behave as they approach the sea. This is especially true for a river as deep as the Uruguay, as much as 20 m in Fray Bentos.

B. River flow rate

29. Although it was not apparent from Argentina's presentation, the Uruguay river is amongst the world's largest.

30. Tab 12 in your folder shows the flows of rivers around the world. With an average flow of 6,230 cubic metres per second[115], the Uruguay river is larger than any river in Western Europe. If the Uruguay river was located in Europe it would be one of the most desirable locations for a pulp mill. No river in Western Europe provides the level of dilution and assimilative capacity that the Uruguay river does.

31. I mention average flows here to avoid drowning the Court in numbers. Of course, the flow in all rivers varies widely. All have low-flow periods according to the season and the weather. The Uruguay river is not unusual in this respect.

32. There are many environmentally safe mills on much smaller rivers than the Uruguay. To use a European example, the 608,000 tons per year Zellstoff Stendal mill was commissioned on the river Elbe a few years ago.

33. The photographs in this display, found at tab 13 of your folder, shows the Stendal and Botnia mill sites, both viewed from an altitude of 10 km. From the photographs, it is obvious that the Elbe is much smaller than the Uruguay. In fact, the average flow of the Elbe is about 15 per cent of the Uruguay river's flow.

34. The phosphorous discharges from the two mills are shown in the next graph, using 2007 data for Stendal[116] and 2009 for Botnia[117]. This may be found at the left side of tab 14 in your folder. The mass of phosphorus tons per year discharged by Botnia is only a little larger than that of the Stendal mill. The difference, of course, reflects Botnia's larger manufacturing capacity.

---

[115]EcoMetrix CIS, *op. cit.*, p. D3.2.

[116]Exponent Report, *op cit.*, Attachment A, A-14.

[117]DINAMA Six Month Report, p. 18, table 5.

35. Now, I will direct your attention to the same graph expressing phosphorus discharged per litre of water in the river. This is on the right side of the same slide, recalling that the Elbe is far smaller than the Uruguay river. You will see that once we normalize the load to the river flow, the relative load of phosphorus from Botnia is significantly lower than that from the Stendal mill. This is because the phosphorus from Botnia is assimilated into a volume which is many times greater than that afforded by the Elbe. A number of other examples may be found in the record[118].

C. Ecological balance of the river

36. Let us move on now to the ecological balance in the river. A very good plant and a very large river make an excellent combination. Whether we use the predictions of the CIS, or the data presented by Argentina, or the mill's actual performance, the conclusion is the same: phosphorus produced by *this* mill discharged to *this* river will not result in changes in water quality or otherwise change the ecological balance. Here is why.

37. The Uruguay river, as you have already heard, carries high amounts of phosphorus. Phosphorus comes from natural, industrial, agricultural and sanitary sources that exist and have existed for many years, in Brazil, Argentina and Uruguay.

38. Using the average flow and concentration of the river, roughly 19,000 tons — 19,000 tons — of phosphorus flow down from far upriver, past Fray Bentos and Gualeguaychú every year, excluding any contribution from the mill[119]. Whether we use the CIS value or the actual 2008 or the actual 2009 results for phosphorous discharge, simple mathematics show that for every ton of phosphorus discharged to the river from the mill, more than 1,000 tons of phosphorus originated from some other location, including, of course, very significant contributions from Argentina. In that environment, the phosphorus from the mill was simply not detectable in 2008 in the river and cannot be responsible for any changes in the environment. So far in 2009 the phosphorous discharges are even lower. A chart showing Botnia's discharge of phosphorus, and the phosphorus in the Uruguay river as a whole, is shown in tab 15 of your folder. The graph does not show the phosphorous discharge from the Gualeguaychú river to the Ñandubaysal Bay; but

[118]Exponent Report, *op cit.*, Attachment A, p. A-13. RU, Vol. IV, Ann. R83.

[119]Assuming an average flow of 6,230 m^3/s and average phosphorous concentration in river of 0.097 mg/l, EcoMetrix CIS, *op. cit.*, pp. D3.2, D3.19.

that discharge alone is more than 25 times Botnia's — 25 times larger[120]. The data for the other nutrient, considered important by Dr. Wheater, namely, nitrogen, tell the same story.

39. The absence of measurable effect on water quality, or on the overall ecological balance is evident in the data. Professor Boyle summarized Uruguay's evidence yesterday. Earlier today, Mr. Reichler showed why Argentina's data lead to the same conclusion.

40. This does not mean the nutrient levels never change. As is evident in both Parties' data, any large system like the Uruguay river experiences substantial natural and seasonal year-to-year variations. This natural variability creates hardiness in the system because natural perturbation is the norm[121]. The plants and animals that live in the system are those which are adapted to natural perturbation of the magnitude that occurs in the river. River Uruguay is a robust ecosystem.

41. In any event, conditions in the river near the mill remain as they were prior to commencement of operations. Of course they show the normal seasonal variability, but there is no evidence that nutrients are building up or setting the stage for algal blooms. You have already seen Mr. Reichler's presentation of what Argentina's data actually say about the lack of nutrient accumulation. This is hardly surprising, because the phosphorous load to the river from the mill is simply too small to make a difference in the overall phosphorous flow down the Uruguay. In short, the phosphorous discharged from the mill, is much less than one part in every thousand in the river. It has no effects on water quality, and thus no effects — no effects at all — on increased plant growth or eutrophication over and above the natural levels in the river. Continued monitoring will enable the Parties to verify that this remains so into the future. In light of the efforts by Uruguay to reduce phosphorous effects to the river, including by the connection of the Fray Bentos sewer to the mill effluent treatment system, there is every reason to expect that discharges of phosphorus will decline in the future.

---

[120]See RU, para. 6.27.

[121]Parsons, P., "Environments and evolution: interactions between stress, resource inadequacy and energetic efficiency, *Biological Reviews,* Vol. 80, 2005, pp. 589-610; Dickinson, G., and Murphy, K. J., *Ecosystems*, 2007, Routledge, New York; Parsons, P., *Animal Physiology: Adaptation and Environment*, 2005, Cambridge University Press; Selander, R. K., and Kaufman, D. W., "Genic variability and strategies of adaptation in animals", *Proc Nat Acad Sci*., Vol. 70, 1973, pp. 1875-1877.

III. ODOUR

42. Mr. President, I will now address the evidence on air emissions. Last week Argentina focused on odour, so I will do the same.

43. Even the highest levels of alleged air pollution claimed by Argentina are 5,000 times — 5,000 times — lower than the concentration the World Health Organization says could cause impacts on health[122].

44. Judge Simma asked: "Do technologies exist which would minimize the alleged malodorous emissions (caused by sulphur) of the Botnia plant?"

45. The short answer is that no better technology exists, but that over time the performance of existing operations could, in theory, be improved through additional training and preparedness.

46. As described in the CIS[123], gases from the mill systems that contain the malodorous TRS gases are collected and incinerated. This is the only effective means of destroying the gases. It is environmentally sound also, because the heat is recovered, and the sulphur is recuperated and used in the manufacturing process.

47. Under ordinary circumstances, there will be no odour emissions from the plant[124]. None. However, no complex mechanical system can be perfect, so malodorous gases occasionally escape. This is not only true of the Botnia plant, it is true of every facility that has air pollution control equipment. To minimize the frequency of such incidents, Botnia has a complete back-up system, which is unusual. Most mills have only partial back-up[125].

48. I will now address the evidence on odour that was presented in Argentina's scientific report.

49. Argentina installed monitoring equipment at various locations. Whenever the equipment registered a concentration of gas that was higher than the detection threshold, Argentina automatically assumed the fault was Botnia. One need not have scientific training to appreciate

---

[122] *Air Quality Guidelines*, World Health Organization, Copenhagen, 2000, Chap. 6.6.

[123] EcoMetrix CIS, *op. cit.*, pp. A8.48–A8.55. See also Ines Camilloni, University of Buenos Aires (UBA), "Analysis of the Environmental Impact on the Air Component by the Pulp Plant at Fray Bentos, Uruguay in the Area of Gualeguaychú", Uruguay's Submission of New Documents, 30 June 2009, Ann. S3, p. 28.

[124] EcoMetrix CIS, *op. cit.*, p. ES. xvi ("Odour will not be detectable during normal mill operations").

[125] EcoMetrix CIS, *op. cit.*, p. A8.55 ("Significantly beyond BAT requirements").

that, at the very least, other possible sources must be considered. And there are at least two very obvious odour sources in Argentina.

50. First, it is well known that wetlands in warm weather, like the Argentine summer, generate hydrogen sulphide, frequently known as H_2S, particularly when sulphur or sulphate are present in the water and mud. These sources are shown diagrammatically in tab 16 of your folder. The shallow wetland and marsh areas on the Argentine side of the river, such as Ñandubaysal Bay and the Ines Lagoon adjacent to International Bridge, release sulphurous gases that are chemically very similar to malodorous gas that Argentina attributes to Botnia. These areas are concentrated near where many of the Argentine odour complaints originated. The 30 June 2009 Argentine Scientific Report stated the water at sample point N6, a location in the Bay

> "is more sulphurized as compared to the Uruguay river water. The greater mineralization of the water . . . reflects the influence of the Gualeguaychú river discharge. The intensified evaporation of the water in this very shallow sector, with little circulation . . . may only increase this difference."[126]

In other words, wetlands and swamps near Argentina can produce "rotten egg" odours. These are often referred to as "swamp gases"[127].

51. For another source of malodorous gases Argentina need look no further than its own domestic sewers. It will come as no surprise to the Court that municipal sewers are perfectly capable of releasing foul-smelling gases. It certainly should have come as no surprise to Argentina's scientific team, even the press reported bad smells from sewers[128].

52. Despite these two obvious local sources of gases, Argentina's Scientific Report gave them no consideration at all. Instead, every occasion when its monitoring equipment detected odour, it was attributed to Botnia. But you cannot just make that assumption. Argentina has not shown that those exceedances of the odour threshold were caused by Botnia. Argentina has presented no evidence to show these exceedances of odour thresholds were caused by Botnia.

---

[126] Argentine Scientific and Technical Report, Chap. 3, Sec. 4.2.1.

[127] United States EPA Program to improve environmental literacy, http://www.epa.gov/region1/students/pdfs/wetch1.pdf; United States Army Corps of Engineers, 1987, *Corps of Engineers Wetlands Delineation Manual*, Wetlands Research Program Technical Report Y-87-1 (on-line edition); John Teal and Mildred Teal, *Life and Death of the Salt Marsh*, Boston, Little, Brown, 1969.

[128] "Gases emission detected in condensate pump: Odour episode at Botnia reached Gualeguaychú", *La República*, 27 Jan. 2009, New Documents Submitted by Argentina, 30 June 2009.

53. To be sure, there have been isolated odour incidents at Botnia, which DINAMA has investigated and addressed to the satisfaction of the IFC and its technical experts, who found that there were only six odour incidents attributable to Botnia in all of 2008[129].

54. However, Argentina has no proof at all that the air in Argentina has suffered an increased number, or frequency, of occasions when the odour detection threshold has been exceeded since the Botnia mill began to operate. This is because Argentina collected only a trivial amount of pre-operational data on air quality. In total, Argentina collected a few days of samples during September, before the plant began to operate in 2007[130]. In light of Argentina's insistence last week that no environmental study is valid without pre-operational data, no valid comparison can be made by Argentina of air quality before or after operation. There are numerous other serious problems with testing methodology and test conclusions, but I believe I have said enough on the topic for now.

55. Mr. President, Members of the Court, I hope it is now clear that, contrary to what Argentina suggested last week, the Botnia mill is a superb facility. It employs outstanding pollution control technology, its location is perfectly appropriate, given the size and characteristics of the river. The Court may be absolutely confident that the Botnia plant could just as easily have been permitted in the European Union or any other jurisdiction with stringent environmental protection laws. Mr. President, Members of the Court, thank you for your attention. I now invite you to give the floor to Professor McCaffrey.

The VICE-PRESIDENT, Acting President: I thank Mr. McCubbin for his presentation, and I now invite Professor McCaffrey to address the Court. You have the floor, Sir.

Mr. McCAFFREY: Thank you very much, Mr. President. Mr. President, Members of the Court, it is an honour and a privilege to appear before you today on behalf of the Eastern Republic of Uruguay.

---

[129]Third EcoMetrix Report, *op. cit.*, p. 6.3. See also DINAMA Resolution after Botnia Odour Incident on 26 January 2009, 23 Mar. 2009, Uruguay's Comments on New Documents Submitted by Argentina, 15 July 2009, Ann. C6.

[130]Argentine Scientific and Technical Report, Chap. 2, Sec. 2.2, p. 28.

SUSTAINABLE DEVELOPMENT

I. INTRODUCTION

1. Mr. President, this case is undeniably about a river — one of the great rivers of South America. However, it could equally be said that it is a case about a promise — a promise by the international community that the developing countries of the world will be supported in their efforts to improve the living conditions of their populations if they do so in a way that is consistent with the protection of the environment. The essence of that promise is captured in the concept of sustainable development.

2. My task today is to show that Uruguay is keeping her end of the bargain. She is doing this because she has put in place processes that ensure the integration of environmental protection and economic development. As a result, the Botnia plant may be said to be a good example of sustainable development. This has been recognized by the international community in the form of the support for the plant that has been provided by an arm of its pre-eminent financial institution, the World Bank. Because of this, the Botnia plant is consistent, not only with the object and purpose of the 1975 Statute — which the parties agree must be interpreted in accordance with the principle of sustainable development[131] — but also international best practice. Thus I am sorry to say that my friend Professor Boisson de Chazournes was simply wrong to say last week that the Botnia plant represents development without respect for the environment[132].

3. Mr. President, today I will first recall the Parties' recognition that the ultimate aim of the 1975 Statute, including both its procedural and substantive provisions, is the sustainable development of the Uruguay river. Second, I will briefly review the meaning of the expression "sustainable development". Third and finally, I will show how Uruguay's rigorous environmental assessment process, and the operation of the Botnia plant itself, are consistent with the paradigm of sustainable development.

---

[131]Uruguay established in her Counter-Memorial, and Argentina accepted in her Reply, that the object and purpose of the 1975 Statute is the sustainable development of the Uruguay river, CMU, para. 2.29.

[132]CR 2009/14 p. 31 para. 19.

II. THE GOAL OF THE 1975 STATUTE IS SUSTAINABLE DEVELOPMENT

4. Mr. President, Uruguay and Argentina agree that the goal of the 1975 Statute — including both its procedural and its substantive provisions — is the sustainable development of the Uruguay river[133]. In her Reply, Argentina stated that she "is in complete agreement with Uruguay" on this point[134]. Indeed she would have to be, since the Statute, without using the expression — which was not coined until later — seeks to achieve precisely the objective sought by sustainable development: an equilibrium between the parties' rights and needs to use the river for economic and commercial development activities on the one hand, and the need to protect it from the environmental harm that may be caused by such activities, on the other[135]. In Article 1 the parties agree to adopt the Statute "in order to establish the joint machinery necessary for the *optimum and rational utilization* of the River Uruguay . . ."[136]. The objective of "optimal and rational utilization" may be taken as equivalent to that of equitable and reasonable utilization. In making the achievement of this objective the overall object and purpose of the Statute, the parties effectively expressed their commitment to sustainable development. Indeed, the entire Statute reflects the kind of balance between economic development and environmental protection that is the essence of sustainable development. Therefore, the meaning and content of sustainable development is important to understand for proper interpretation of the 1975 Statute, and it is to that topic that I now turn.

III. THE MEANING OF "SUSTAINABLE DEVELOPMENT"

5. Mr. President, Members of the Court, perhaps the best known explication of the concept of sustainable development is provided by the 1987 Report of the World Commission on Environment and Development, or Brundtland Commission. According to the Commission, "Sustainable development is development that meets the needs of the present without

---

[133]CMU, paras. 1.26 and 2.29; AR, para. 1.48.

[134]RA, para. 1.48.

[135]See CMU, para. 1.26.

[136]Statute of the River Uruguay, Art. 1; emphasis added.

compromising the ability of future generations to meet their own needs."[137] The Commission went on to observe that sustainable development

> "contains within it two key concepts:
>
> — the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and
>
> — the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs"[138].

In approving the construction of the Botnia plant, Uruguay had in mind precisely these two concepts: the need to improve the standard of living of present and future generations of its population; and the importance of doing so in a way that is compatible with the limitations on the environment's ability to meet those needs.

6. The concept of sustainable development was further elaborated in the Rio Declaration, adopted at the United Nations Conference on the Human Environment in 1992. Principle 4 of the Rio Declaration, cited approvingly by both Parties[139], states: "In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it."[140] This Court has also recognized the need to integrate economic development and environmental protection. In the *Gabčíkovo* case, for example, the Court stated: "This need to reconcile economic development with protection of the environment is aptly expressed in the concept of sustainable development" (*Gabčíkovo-Nagymaros Project (Hungary/Slovakia), Judgment, I.C.J. Reports 1997*, p. 78, para. 140). And in your 2006 provisional measures Order in this very case, you recognized that the case "highlights the importance of the need to ensure environmental protection of shared natural resources while allowing for sustainable economic development"(*Pulp Mills on the River Uruguay (Argentina* v. *Uruguay), Provisonal Measures, Order of 13 July 2006, I.C.J. Reports 2006*, p. 133, para. 80).

7. Similarly, in the recent *Iron Rhine* arbitration, decided in 2005, the tribunal stated as follows:

---

[137]World Commission on Environment and Development, Our Common Future, p. 43 (Oxford University Press, 1987).

[138]*Ibid.*

[139]CMU, para. 2.29, n. 71; RA, para. 1.48.

[140]Rio Declaration on Environment and Development, Principle 4, UN doc. A/CONF.151/26, 31 *ILM* 874 (1992).

> "Environmental law and the law on development stand not as alternatives but as mutually reinforcing, integral concepts, which require that where development may cause significant harm to the environment there is a duty to prevent, or at least mitigate, such harm . . ."[141]

8. The concept of sustainability also plays a prominent role in international water law. Article 5 of the 1997 United Nations Convention on International Watercourses reflects the basic principle of equitable and reasonable utilization. After stating that obligation, Article 5 continues:

> "In particular, an international watercourse shall be used and developed by watercourse States with a view to attaining optimal and sustainable utilization thereof and benefits therefrom, taking into account the interests of the watercourse States concerned, consistent with adequate protection of the watercourse."[142]

Clearly the General Assembly in adopting this provision — which is based on a draft prepared by the International Law Commission — contemplated the use and development of international watercourses in a manner that is sustainable.

9. While the precise legal status of the concept has been debated[143], there is no doubt that at least since the Rio conference in 1992 sustainable development has served as the international community's overarching standard for guiding and assessing efforts to improve living conditions and to develop economically more generally. More to the point for the present case, sustainable development is given legal status precisely by the agreement of the Parties that it is the object and purpose of the 1975 Statute and should therefore be used in the interpretation of its provisions.

10. Mr. President, there is also no doubt about the right of Uruguay to develop her resources, and in particular her water resources, in a sustainable way. Common Article 1 of the 1966 Human Rights Covenants recognizes the right of all peoples to "freely pursue their economic, social and cultural development", and "to freely dispose of their natural wealth and resources" in accordance with international law[144]. With regard to the Uruguay river in particular, Article 27 of the

---

[141] *Iron Rhine* arbitration (Belgium/Netherlands), Award of 24 May 2005, available at http://www.pca-cpa.org/showpage.asp?pag_id=1155.

[142] Convention on the Law of the Non-navigational Uses of International Watercourses, Art. 5 (1), United Nations doc. A/RES/51/869, 21 May 1997, 36 *ILM* 700 (1997).

[143] See generally Alan Boyle and David Freestone, eds., *International Law and Sustainable Development* (Oxford University Press 1999).

[144] International Covenant on Economic, Social and Cultural Rights, 16 Dec. 1966, Art. 1 (1) and (2), United Nations General Assembly resolution 2200 (XXI), 21 United Nations, *Official Records of the General Assembly, Forty-ninth session, Supplement No. 16*, United Nations doc. A/6316 (1967), 6 *ILM* 360 (1967); International Covenant on Civil and Political Rights, 16 Dec. 1966, Art. 1 (1) and (2), United Nations General Assembly resolution 2200 (XXI), 21 United Nations, *Official Records of the General Assembly*, *Fifty-second Session, Supplement No. 16*, United Nations doc. A/6316 (1967), 6 *ILM* 368 (1967).

1975 Statute confirms "[t]he right of each Party to use the waters of the river, within its jurisdiction, for domestic, sanitary, industrial and agricultural purposes . . .". Reflecting the balanced approach of the Statute, Article 27 makes the exercise of this right subject to "the procedure laid down in articles 7 to 12 when the use is liable to affect the régime of the river or the quality of its waters". More generally, the right of all States to pursue sustainable economic development is confirmed in Principle 2 of the Rio Declaration, whose approach manifests a similar balance. According to that Principle: "States have . . . the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies . . ."[145] Principle 2 then goes on to reflect the correlative "responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction"[146]. Principle 2 and its predecessor, Principle 21 of the 1972 Stockholm Declaration, are generally regarded as reflecting customary international law[147]. The Court has echoed the second limb of the Principle in its Advisory Opinion on *Nuclear Weapons,* in a passage it later quoted in the *Gabčíkovo* Judgment (*Gabčíkovo-Nagymaros Project (Hungary/Slovakia), Judgment, I.C.J. Reports 1997*, p. 41, para. 53):

> "The existence of the general obligation of States to ensure that activities within their jurisdiction and control respect the environment of other States or of areas beyond national control is now part of the corpus of international law relating to the environment." (*Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, I.C.J. Reports 1996 (I),* pp. 241-242, para. 29.)

11. Again, this "general obligation" may be said to have been given specific content in relation to the Uruguay river by the 1975 Statute, which balances the right of each party to use the river for industrial and other purposes against obligations relating to the protection of its ecology[148].

---

[145] Rio Declaration, *op cit.*, Principle 2.

[146] *Ibid*.

[147] See Louis B. Sohn, "The Stockholm Declaration on the Human Environment", 14 *Harvard International Law Journal* 423, pp. 491-493 (1973); and United Nations General Assembly resolution 2996 (XXVII) (1972), adopted without opposition, stating that Principles 21 and 22 of the Stockholm Declaration "lay down the basic rules governing this matter".

[148] 1975 Statute, Arts. 27-29 and, e.g., pp. 35-42.

IV. BOTH URUGUAY'S RIGOROUS ASSESSMENT PROCESS LEADING TO THE BOTNIA PLANT'S APPROVAL AND THE ACTUAL OPERATION OF THE PLANT EXEMPLIFY SUSTAINABLE DEVELOPMENT

12. Mr. President, Members of the Court, it remains for me to review some of the features of Uruguay's rigorous assessment process leading to the Botnia plant's approval, and the actual operation of the plant itself, that exemplify sustainable development.

13. Mr. President, as demonstrated in Uruguay's written pleadings[149] and as my learned colleague Professor Boyle will explain in some detail tomorrow, Uruguay's environmental impact assessment and permitting processes are fully consistent with the 1975 Statute and international law. Uruguayan law requires the rigorous assessment of potential environmental impacts. The independent experts of the International Finance Corporation, or IFC — the private financing arm of the World Bank — concluded after analysing Uruguay's environmental protection régime that "the permit setting process used by DINAMA is practical and rigorous"[150].

14. Indeed, DINAMA's review process, which is described in detail in the Counter-Memorial[151], is demanding, careful and stringent. For example, when Botnia submitted its initial EIA (environmental impact assessment) on 31 March 2004 as part of the permitting process, DINAMA reviewed it scrupulously and, over the course of six months — between July and December of that year — issued no fewer than five written requests for additional information[152]. Botnia's responses to these requests, between September 2004 and January 2005, resulted in considerable augmentation of the 31 March 2004 EIA. Again, I offer this as one example to illustrate how seriously Uruguay takes the protection of the environment.

15. Mr. President, this careful and demanding decision-making process is one of the hallmarks of economic development that is environmentally sustainable. There was no rush to judgment here, with regard to Botnia's proposed plant. There was instead a careful, methodological assessment of the proposal, as required by Uruguay's environmental laws. As I

---

[149]For example, CMU, paras. 4.107-4.144.

[150]International Finance Corporation, Cumulative Impact Study, Uruguay Pulp Mills, p. A6.7, Sep. 2006, CMU, Vol. VIII, Ann. 174.

[151]CMU, paras. 4.108-4.116.

[152]*Ibid.*, para. 4.126.

have already mentioned and as Professor Boyle will explain further tomorrow, Uruguay's requirements on this subject are fully consistent with both the 1975 Statute and international law.

16. Mr. President, I now pass from Uruguay's careful and meticulous review process to the thorough assessments conducted by outside, independent experts that confirmed Uruguay's conclusions regarding the environmental impacts of the Botnia plant. On 21 November 2006, the IFC and the Multilateral Investment Guarantee Agency, or MIGA, approved an investment by the IFC and a guarantee from MIGA for Botnia's Orion pulp mill project in Uruguay. A document posted on the IFC's website states that "[t]he two organizations, after completing a thorough review of the facts, are convinced that the mill will generate significant economic benefits for Uruguay and cause *no* environmental harm"[153]. The Court will recall that these are the twin components of sustainable development: generation of significant economic benefits in a way that avoids harm to the environment.

17. The "thorough review of the facts" mentioned by the IFC was conducted by independent experts commissioned by the organizations to ensure that the proposed Botnia mill would meet their stringent environmental and social standards. The IFC explains:

> "The decision to proceed was based on an extensive due diligence process, which included the conclusive and positive findings of a cumulative impact study and a subsequent review of the study undertaken by independent experts . . . The conclusions of the study and the experts' report confirm that the mill will comply with IFC and MIGA's environmental and social policies while generating significant economic benefits for the Uruguayan economy."[154]

A later, pre-start-up audit of the mill by independent experts commissioned by the IFC concluded that the plant uses "[m]odern process technologies" that "promise to perform with low emission and world-leading environmental performance"[155].

18. The mill commenced operation on 10 November 2007. Thus we now have over one-and-a-half year's experience with the plant's operation to use as a basis for determining whether these predictions were accurate. Mr. President, the short answer is an emphatic "yes" — they were.

---

[153]See http://www.ifc.org/ifcext/lac.nsf/Content/Uruguay_Pulp_Mills; emphasis added; RU, Vol. I, Chap. 4, p. 202, para. 4.5.

[154]*Ibid*.

[155]AMEC Forestry Industry Consulting, Orion BKP Mill Pre-Startup Audit, pp. 5-6, Nov. 2007, RU, Vol. III, Ann. R50.

19. In a follow-up study commissioned by the IFC based on the plant's first six months of operation, the technical experts found that "the water quality characteristics of the Rio Uruguay have not changed as a result of the discharge of mill effluent" into the river[156]. These findings are confirmed in the more recent study commissioned by the IFC, on the plant's first year of operation, of March, 2009[157]. That report concludes that

> "all indications are that the mill is performing to the high environmental standards predicted in the EIA [the environmental and social impact assessment prepared by Botnia] and CIS [the Cumulative Impact Study commissioned by the IFC], and [is performing] in compliance with Uruguayan and IFC standards. These results are also consistent with the performance measures for other modern mills"[158].

The report also states: "A comparison of the monitoring data pre- and post-commissioning of the mill shows that *the water quality of the Rio Uruguay has not changed as a result of the mill*."[159] This finding is corroborated by one comparing conditions above and below the mill: "the water quality between the mill and Fray Bentos [that is, downstream of the mill] is comparable to the water quality *further upstream beyond the influence of the mill*, indicating that the mill has not affected water quality within the Rio Uruguay"[160]. Mr. President, it bears emphasis that this finding, by independent technical experts, confirming the prediction of DINAMA, is quite exceptional: a pulp mill, operating close to its design capacity of one million air dried tonnes of pulp per year[161], and contributing significantly to the Uruguayan economy[162], "has not affected water quality within the Rio Uruguay". Mr. President, if this does not fit the definitions of sustainable development and equitable utilization, it is hard to imagine what would.

---

[156]IFC, *Orion Pulp Mill, Uruguay Independent Performance Monitoring As Required by the International Finance Corporation (Phase 2: Six-Month Environmental Performance Review)*, p. 4.3, July 2008; RU, Vol. IV, Ann. R98.

[157]EcoMetrix, Inc., *Orion Pulp Mill, Uruguay — Independent Performance Monitoring as Required by the International Finance Corporation — Phase 3: Environmental Performance Review, 2008 Monitoring Year*, Mar. 2009, (hereafter EcoMetrix Third Report). Uruguay's Submission of New Documents, 30 June 2009, Ann. S7.

[158]*Ibid*., p. ES.ii.

[159]*Ibid*., p. ES.iii; emphasis added.

[160]*Ibid.*; emphasis added.

[161]EcoMetrix Third Report, p. ES.ii.

[162]See, for example, "Gracias a Botnia crece la industria uruguaya", *La Nación*, 18 Sep. 2009, available at http://www.lanacion.com.ar/nota.asp?nota_id=988143 (stating that the Uruguyan manufacturing industry grew 9.6 per cent in 2007 due to the operation of the Botnia mill in the last two months of the year).

20. The "Scientific and Technical Report" submitted by Argentina after the close of written pleadings expresses worries about what might happen in the future as a result of the Botnia plant's operation. Specifically, the Report states: "The main outcome of this study is the detection of changes associated to the pulp mill activities that could act as an **early warning framework** to anticipate future major and more irreversible ecosystem damages."[163] This conclusion calls for several comments.

21. First, the report as a whole was, of course, commissioned by the Argentine Government and carried out by Argentine scientists under contract to their Government; it does not constitute an independent, third-party analysis of the effects of the Botnia plant. Second, the report does not dispute the favourable conclusions of the third EcoMetrix report, which *was* prepared by an independent third party with the relevant technical expertise. Third, it is not entirely clear what the possible effects mentioned in the Argentine report are attributable to — whether natural phenomena, the numerous Argentine industrial plants affecting the river, the intensive agriculture draining into the river from the Argentine side, the Botnia plant itself, or some combination of these factors. Fourth, and perhaps most revealing, the best case the Argentine report can make is *not* that the plant is harming the ecosystem or violating any applicable CARU or Uruguayan standards, or even any standards at all, but that there *might* be problems at some undefined point in the future — problems which, again, do not violate any applicable standard or regulation, including those of the international financial institutions supporting the project. As my colleague Mr. Reichler showed yesterday (CR 2009/16) and today, the Argentine report finds no present harm that would violate the Statute or CARU standards, and no imminent harm that would do so[164]. Instead, the report speculates on what "could" eventuate in the future. It is true that at last week's hearings Argentina alleged that the plant was causing harm presently. But as my colleagues Professor Boyle, Mr. Reichler and Mr. McCubbin have shown, these claims are entirely unsupported by the evidence — and in fact, Argentina's own evidence proves the contrary.

---

[163]New Documents Submitted by Argentina, Vol. I, Scientific and Technical Report, 30 June 2009, Executive Summary, second page (unnumbered); emphasis in original.

[164]See *ibid*., Executive Summary, and in particular, Chap. 3, neither of which point to any present or imminent harm that would violate the Statute or CARU standards.

22. Mr. President, if such speculation is allowed to stop the functioning of plants like the one involved in this case, the principle of equitable and reasonable utilization will be rendered meaningless and the promise of sustainable development will become a mirage, a cruel hoax. Indeed, no investor would dare to commit funds to such a project if the Sword of Damocles of possible effects in some remote and undefined future hung over it.

23. Yet there is no need for such a scenario to ensue, because the Parties have established a robust mechanism for dealing with just this sort of situation: CARU. It is for that mechanism to determine whether its standards are adequate, and if not, to amend them so that they are. Moreover, the Court should not permit Argentina, by invoking speculative future developments, to bypass a system to which she has agreed and which is fully equipped to make any necessary adjustments to water quality standards in the future. Not only has Argentina agreed to these standards, she has also never indicated to either CARU or Uruguay that the standards are not sufficiently strict, nor has she proposed any modifications to them. For her part, Uruguay has never resisted changes to the standards. If, for the sake of argument, the Botnia plant were to have the kinds of effects over the long term that the Argentine report refers to, there is nothing to indicate that CARU is not fully capable of dealing with them, and competent to do so, by means of adopting more stringent water quality regulations.

24. Perhaps Argentina's case would be more sympathetic if CARU's standards were very low — thus suggesting that it would permit development that was not in fact sustainable. (Of course, Argentina herself would share the responsibility for such low standards.) But CARU's standards can hardly be said to be low. According to the IFC's independent experts, CARU's water quality standards are among the most advanced in the world, comparing favourably with those of such respected organizations as the European Union and the World Health Organization[165]. Indeed, Argentina does not suggest otherwise. Therefore, Argentina's argument amounts to an assertion that CARU should have adopted standards that are *higher* than those of such model organizations as the European Union and the WHO. Not only would this make a mockery of the entire idea of sustainable development and the companion principle of equitable

[165]International Finance Corporation, Cumulative Impact Study, Uruguay Pulp Mills, Ann. D, pp. D2.5, D2.9-D2.10, Sep. 2006, CMU, Vol. VIII, Ann. 176.

utilization, it also reflects poorly on Argentina herself since she participated in the formulation and adoption of the CARU standards.

25. Finally with regard to CARU's monitoring of the plants in particular, a 2004 year-end report by the Argentine Foreign Ministry to the Chamber of Deputies points out that "[c]ontrols on both plants will be more extensive than those our own country has on its plants on the Paraná River, which were nevertheless accepted by Uruguay"[166]. This confirms again Uruguay's determination to develop its economy in a way that is sustainable and entirely consistent with the 1975 Statute.

26. Mr. President, in contrast with the allegations of possible future harm from the Botnia plant in Argentina's Scientific and Technical Report, we heard repeatedly last week about how Uruguay's efforts to develop sustainably are affecting Argentina's tourism industry presently, specifically in Gualeguaychú[167]. Yet Argentina has been unable to present any actual evidence that tourism has declined. In fact, if anything, it would seem to have increased.

27. Since the plant's operation began in November 2007, Gualeguaychú has experienced record numbers of tourists. This year's annual carnival in Gualeguaychú was reported to have been the "second largest in Carnival history"[168]. The event was attended by 180,000 visitors from all over the world, and raised an amount reportedly equal to Gualeguaychú's entire municipal budget[169]. [Slide.] In fact, Argentine newspapers reported that the level of attendance "this past January [was] the best in Carnival's history"[170]. Is this surge in tourism due to the Botnia plant? Most probably not. But it does demonstrate that the plant is certainly not having a negative effect on tourism in Gualeguaychú.

28. Despite the claims to the contrary made before the Court last week, Argentine officials have been working hard to convince national travel reporters that the waters of the Uruguay river

---

[166]Statement by Argentine Ministry of Foreign Affairs, International Trade and Culture, included in Report of the Head of the Argentine Cabinet of Ministers, Alberto Angel Fernández, to the Argentine Chamber of Deputies, Report No. 64, p. 136 (Mar. 2005), CMU, Vol. III, Ann. 46.

[167]CR 2009/13, p. 21, para. 31 (Kohen): "Messieurs les juges, le tourisme et l'industrie de la pâte à papier ne sont pas conciliables. Le carnaval et les odeurs nauséabondes ne sont pas conciliables."

[168]"The Best January in History: 2009 Carnival in Gualeguaychú Earns 77 Million", *Diario del Sur* Digital — Concordia/Entre Rios, Argentina, 15 Mar. 2009). Uruguay's Submission of New Documents, 30 June 2009, Ann. S19.

[169]*Ibid.*

[170]*Ibid.*

along the Ñandubaysal beaches remain uncontaminated and are as welcoming as always. The Gualeguaychú Tourism Board invited journalists to experience the waters of the River Uruguay for themselves in order to spread the message and entice tourists to their beaches[171].

29. Indeed, in its Scientific and Technical Report, Argentina repeatedly asserts that the Ñandubaysal Bay is not affected by factors in the river[172], such as effluents from the Botnia plant, as we heard from Mr. Reichler earlier. In any event, as we have shown, the Botnia plant does not affect the river, so it could not affect Ñandubaysal Bay. The beach we heard so much about last week is in Ñandubaysal Bay. Thus Professor Kohen is wrong when he says the plant and recreational uses on the beaches of Ñandubaysal Bay are incompatible[173]. He is contradicted by Argentina's own evidence.

V. CONCLUSION

30. Mr. President, Members of the Court, in conclusion, Uruguay has a right to utilize and develop the Uruguay river in a way that is sustainable. Indeed, the river is of great significance to Uruguay, because in contrast to Argentina, a large part of Uruguay's territory lies in the river's basin. The right of sustainable use has been recognized in numerous instruments, from global declarations and treaties to the Statute of the Uruguay river. Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It is thus a matter of inter-generational equity, requiring that economic development proceed in a manner that integrates protection of the environment, which is the human life-support system on which both present and future generations depend.

31. Uruguay's environmental record is enviable, and the decision-making processes she has put in place exemplify sustainable development. Senior Argentine officials have themselves

---

[171]"Summer in Gualeguaychú: The Entre Rios Municipality began its Season and Presented its Products to Different Invited Journalists", *El País*, 28 Dec. 2008, available at http://www.mensajeroweb.com.ar/index.php?x=nota/12781/1/verano-en-gualeguaychu.

[172]Argentine Scientific and Technical Report, Chap. 3.2, para. 4.1.2 (arguing that Argentina's scientists were able "to clearly set the bay apart, as it acts as an ecosystem that is relatively detached from the Uruguay river" and that the data "shows that the bay is an environment that is detached from the short term fluctuations of the river"), para. 4.3.1.2 (pointing to data that "reinforces the interpretation that the bay is an environment that is relatively detached from the river") and para. 1 (arguing that the Bay "is apparently not tied to the river's natural and human-derived short-term variations").

[173]CR 2009/13 p. 21, para. 31.

recognized Uruguay's leadership in the field of environmental protection[174]. Given this record, it strains credulity to assert, as Argentina does, that Uruguay would execute an abrupt about-face with regard to this one, well-known project.

32. Mr. President, Argentina has not challenged the right of Uruguay to develop economically, and thus to meet the needs of present and future generations of her citizens. Argentina also does not challenge the proposition that the 1975 Statute must be interpreted in accordance with its object and purpose, which is to guarantee equitable utilization and sustainable development. Nor does Argentina contend that the Botnia plant violates standards adopted by CARU for the protection of the river and its ecosystems — standards that Argentina herself participated in formulating, and that may be considered an application of the concept of sustainable development to the Uruguay river. Having accepted all of this — as indeed she must because there is no evidence to the contrary — Argentina has left herself without any basis, in law or in fact, for her belated contention that the Botnia plant should not be permitted to continue to operate because of conditions that *may* develop at some distant point in the future, or wholly unsubstantiated harm that the plant is allegedly causing in the present, and that Uruguay has shown to be non-existent.

33. If such conditions did somehow develop in the future, it would be for CARU to deal with them. It is CARU's responsibility, conferred upon it by the parties, to determine whether its standards are adequate and, if not, to modify them or develop new ones. CARU has done this in the past — indeed, it is mandated to do so — and there is no reason to believe that it will not continue to perform this function in the future.

34. Argentina would have the Court resolve this dispute in a way that would make sustainable development a false promise. Uruguay would appeal to the Court to recognize Uruguay's careful efforts to develop economically, in part through the Botnia plant, for what they are: a paradigmatic example of sustainable development — development that has been planned cautiously, that does not cause environmental harm, that is consistent with the 1975 Statute, and that meets the highest international standards.

---

[174]Former Argentine Foreign Minister Rafael Bielsa recognized Uruguay's prominence in this regard, stating that Uruguay is "the sixth leading nation in the world in terms of environmental protection", CMU, Vol. II, Ann. 14.

35. Mr. President, distinguished Members of the Court, this concludes my presentation, and Uruguay's argument for today. I thank you for your kind and patient attention.

The VICE-PRESIDENT, Acting President: I thank Professor McCaffrey for his presentation. M. le juge Bennouna a une question à poser aux deux Parties. Monsieur le juge Bennouna, vous avez la parole.

M. BENNOUNA : Je vous remercie, Monsieur le président. Ma question est adressée aux deux Parties. Cette question est la suivante : Qu'est-ce que les Parties entendent par un «expert indépendant» auquel elles ont pu avoir recours ? En particulier, dans le contexte de l'affaire dont la Cour est saisie, est-ce qu'un expert mandaté par l'une ou l'autre des Parties peut être qualifié d'expert indépendant ? Je vous remercie, Monsieur le président.

Le VICE-PRESIDENT, faisant fonction de président : Je vous remercie, Monsieur le juge. Le texte précis de cette question sera communiqué aux Parties sous forme écrite dès que possible. Conformément à l'usage, les Parties sont invitées à répondre à cette question lors des audiences à venir. L'Uruguay pourra y répondre durant la suite de son premier tour de plaidoiries tandis que l'Argentine aura l'occasion de le faire lors de son second tour.

Voilà qui met un terme aux plaidoiries de ce jour. La Cour se réunira à nouveau demain matin à dix heures. L'audience est levée.

L'audience est levée à 12 h 40.

_____