

DISSENTING OPINION OF JUDGE *AD HOC* DUGARD

Unable to accept methodology of quantification as accepted by the Court — Increased valuation of impairment to environmental goods and services — Court should have had regard to considerations such as protection of the environment, climate change and gravity of respondent State's conduct — Erga omnes nature of obligation not to harm gas regulation services.

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1. I agree with all the findings of the Court except its decision to make an award of US\$120,000 to Costa Rica for environmental damages relating to the impairment or loss of goods and services arising out of Nicaragua's unlawful activities. My disagreement on both the reasoning of the Court and the quantum of damages awarded is so fundamental that I believe this opinion is more accurately described as a dissenting opinion than a separate opinion.

2. On the face of it this case may appear to be trivial. Damage to a wetland of 6.19 hectares for which the injured State claims a mere US\$6,711,685.26 in compensation hardly suggests that this is an important case requiring the serious attention of the International Court of

Justice. Such an assessment would, however, be wrong. The dispute between Costa Rica and Nicaragua involves three fundamental issues: the forcible invasion of the territory of a State, the purposeful damage to an internationally protected wetland and the calculated and deliberate violation of an Order of this Court.

3. Costa Rica has claimed compensation for the costs and expenses incurred in investigating, monitoring and remediating Nicaragua's unlawful actions. It has also claimed compensation for material damage to the environment caused by Nicaragua's actions.

4. I will say little about the Court's Judgment relating to Costa Rica's claim for costs and expenses in investigating Nicaragua's incursions into its territory and in remediating the damage caused to its environment by Nicaragua. The Court may have been too strict on occasion in dealing with Costa Rica's claims but to a large extent Costa Rica has only itself to blame for failing to produce satisfactory evidence of the costs and expenses it claims to have incurred. Costa Rica's principal claim concerned the salaries paid to its staff responsible for monitoring the disputed area but, although it is very possible that staff were appointed expressly for this purpose or paid overtime for this work, insufficient evidence was produced to this effect.

5. It is Costa Rica's claim for material damage caused to the environment that forms the subject of the present opinion. This claim obliges the Court to place a monetary figure on the harm done to Costa Rica's environment by Nicaragua's unlawful activities. Inevitably this monetary quantification will be seen as the measure of the Court's concern for the protection of the environment in an age in which most nations agree on the need for a national and international commitment to the preservation of the environment of our planet.

6. The assessment of damage to the environment is a difficult task rendered even more difficult by the absence of an agreed scientific method for making such an assessment. This is reflected in the different methodologies proposed by the Parties in the present dispute for making this assessment and in the vastly different estimates advanced. Costa Rica claims US\$2,880,745.82 while Nicaragua estimates that only the paltry sum of US\$34,987 is due.

7. My disagreement relates to both the method employed by the Court to reach its decision on the quantum of damages to be awarded and the amount determined by the Court in its quantification of environmental damages. The Court has decided to award Costa Rica US\$120,000 in compensation for the damage caused to its environment. While I would have assessed the amount due at considerably less than the amount claimed by Costa Rica I would have awarded Costa Rica considerably

more than that awarded by the Court. In my judgment the sum of US\$120,000 constitutes a mere token for substantial harm caused to an internationally protected wetland by the egregious conduct of Nicaragua. In this opinion I will critically examine the methodology employed by the Court in arriving at the sum of US\$120,000 and comment on its failure to have regard to equitable considerations, such as the character of the affected terrain, the implications of deforestation for climate change and the conduct of Nicaragua.

I. THE METHODOLOGY EMPLOYED BY THE COURT IN ARRIVING AT COMPENSATION FOR ENVIRONMENTAL DAMAGES IN THE SUM OF US\$120,000

8. The quantification of damages in respect of environmental harm is not easy. This was emphasized by the United Nations Compensation Commission (UNCC) established in 1991 to consider claims arising out of Iraq's unlawful invasion and occupation of Kuwait¹. The Panel of Commissioners stressed the "inherent difficulties in attempting to place a monetary value on damaged natural resources"² while the Working Group of Experts entrusted by the United Nations Environment Programme to assist the UNCC described the valuation of environmental damage as "a challenging task" which raised "inherent analytical and practical difficulties in specifying the appropriate elements of damage, the nature and extent of the damage required to allow for recovery and the determination of the amount of compensation"³.

9. This is the first occasion on which the Court has considered a claim for environmental damage. In evaluating the harm suffered by Costa Rica, therefore, it was open to the Court to determine the methodology which it considered appropriate. The Court, having examined the Parties' different methodologies, concluded that it would not "choose between them or use either of them exclusively for the purpose of valuation of the damage caused to the protected wetland in Costa Rica", and that it would take

¹ See Security Council resolution 687 (1991), paras. 16 and 18. See further on the United Nations Compensation Commission (UNCC), R. Higgins et al. (eds.), *Oppenheim's International Law: United Nations*, Vol. II, Oxford University Press, 2017, p. 1254 ff.

² UNCC Governing Council, *Report and Recommendations Made by the Panel of Commissioners concerning the Fifth Instalment of "F4" Claims*, UN doc. S/AC.26/2005/10, 30 June 2005, para. 81.

³ "Conclusions of the Working Group of Experts on Liability and Compensation for Environmental Damage arising from Military Activities", United Nations Environment Programme, *Liability and Compensation for Environmental Damage: Compilation of Documents*, Nairobi, 1998, para. 44.

elements of either Parties' method into account when they offered a reasonable basis for valuation (Judgment, para. 52). The Court declared that in valuating environmental harm it would make an "overall assessment" rather than attributing values to specific categories of environmental goods and services (*ibid.*, para. 78), guided in the absence of adequate evidence as to the extent of material damage by equitable considerations (*ibid.*, para. 35), and the character of the affected area — an internationally protected wetland.

10. A careful analysis of the Court's decision makes it clear that it has not in fact followed this approach. Moreover, the approach which the Court has followed is unsatisfactory. In the paragraphs which follow I will demonstrate this by, first, explaining the submissions of the Parties, and, secondly, critically examining the reasoning of the Court in making its award.

11. Costa Rica proposed an "ecosystems service approach" based on a report by a Costa Rican non-governmental organization, Fundación Neotrópica, which maintained that environmental damage might be calculated on the basis of the reduction or loss of the ability of the environment to provide certain goods and services. Such goods and services comprise those that may be traded on the market (such as timber) and those that may not be traded (such as gas regulation and natural hazards mitigation). A monetary value was attached to such environmental goods and services by a value transfer approach which relied on values drawn from the studies of other ecosystems with similar conditions. Costa Rica furthermore argued that the losses sustained as a result of Nicaragua's actions were to be calculated over a period of 50 years, the estimated time required for the affected area to recover. This was qualified by a discount rate of 4 per cent, the rate at which the ecosystem would recover. Costa Rica claimed for the loss or impairment of six goods and services: standing timber, raw materials (fibre and energy), gas regulation and air quality services such as carbon sequestration, mitigation of natural hazards, soil formation and erosion control and biodiversity services.

12. Nicaragua, for its part, proposed a less complicated method of assessment which involved an "ecosystem service replacement cost" in terms of which Costa Rica was only entitled to compensation to replace environmental services that either have been or may be lost prior to the recovery of the impacted area. This value would be calculated by reference to the price that would have been paid to farmers to preserve an equivalent area until the services provided by the impacted area had recovered. Nicaragua accordingly rejected both the system of value transfer for attaching a monetary value to goods and services and the 50-year recovery period.

13. Nicaragua submitted a report by two experts, Payne and Unsworth, which examined Costa Rica's estimate of US\$2,823,112 for the six goods and services claimed to have been lost by Costa Rica as a result of Nicaragua's actions. Accepting Neotrópica's methodology for the sake of argument only, Payne and Unsworth corrected certain mistakes which it perceived in Neotrópica's assessment. It concluded that, correctly applying Neotrópica's own methodology, Costa Rica was entitled to a mere US\$84,296.

14. The Court examined these different methodologies, but ultimately relied only on Nicaragua's "corrected analysis", with certain adjustments made to account for the Court's criticisms of Nicaragua's "corrections". These criticisms were: first, the Court said that Payne and Unsworth's corrected analysis had erred by assigning a value to raw materials of US\$1,200 (in contrast to Neotrópica's valuation of US\$17,877) that was based on the assumption that there would be no loss in those goods and services after the first year; second, its valuation of biodiversity services of US\$5,144 (in contrast to Neotrópica's valuation of US\$40,730) failed to pay sufficient regard to the importance of such services in an internationally protected wetland and regrowth was unlikely to match, in the near future, the pre-existing richness of diversity in the area; third, the "corrected analysis" for gas regulation of US\$47,778 (in contrast to Neotrópica's valuation of US\$937,509) did not take account of the loss of future carbon sequestration as it had incorrectly valued these services as a one-time loss. The Court made no objections to Payne and Unsworth's corrected valuation of felled trees of US\$30,175 (in contrast to Neotrópica's valuation of US\$462,490).

15. The Court's apparent reliance on the "corrected analysis" is problematic for several reasons. For one, the "corrected analysis" attaches a value to each head of damage in isolation. This runs counter to the Court's declared intention of not attributing values to specific species of harm. Secondly, certain elements of the "corrected analysis" cannot legitimately be relied upon by the Court as providing a "reasonable basis" for its own valuations. The methodology for the calculation of timber, for example, relies on an assessment of the volume of timber per hectare in the affected area. Nothing in the record before the Court explains why this method of calculation is used. The value transfer studies on which the "corrected analysis" relies have not been assessed by the Court for their reasonableness. Thirdly, the Court rejects Costa Rica's argument that the recovery period for goods and services is 50 years, observing "that different components of the ecosystem require different periods of recovery and that it would be incorrect to assign a single recovery time to the various categories of goods and services identified by Costa Rica" (Judgment, para. 76). But the Court gives no indication of what it considers to be the appropriate recovery period for the goods and services in question. Is it

20 to 30 years as accepted by Nicaragua⁴ or 10-20 years for biodiversity and 1-5 years for raw materials and gas regulation as suggested by Nicaragua's expert, Professor Kondolf⁵? The Court's failure to clarify the recovery period which it considered applicable makes it impossible to assess the impact that this factor had on the Court's valuation.

16. The failure of the Court to address the value to be attached to the loss of "close to 300 trees", many of which were over 100 years old, is inexplicable in the light of the Court's statement that "the most significant damage to the area, from which other harms to the environment arise, is the removal of trees by Nicaragua" (Judgment, para. 79). Moreover the Court declared that "an overall valuation can account for the correlation between the removal of the trees and the harm caused to other environmental goods and services (such as other raw materials, gas regulation and air quality services, and biodiversity in terms of habitat and nursery" (*ibid.*). Given the central role played by trees in the quantification of environmental damage — in the opinion of the Court — it is surprising that there is no indication of the valuation the Court attaches to the close to 300 trees felled by Nicaragua in 2010 and 2013. The Court rejects Nicaragua's proposed total compensation to Costa Rica of US\$34,987 (*ibid.*, para. 77) but fails to indicate its own valuation in relation to the felled trees. Presumably, despite its silence on this subject, the Court does not accept Payne and Unsworth's valuation of US\$30,175 for timber based on their correction of Neotrópica's valuation of US\$462,490. Nor does the Court indicate *how* the felled trees are to be valued. Is the valuation based on the average price of standing timber that accords value to the eliminated stock and growth potential of that stock over 50 years as suggested by Costa Rica (*ibid.*, para. 60)? Or is it based on the value attached to each of the felled trees, and the loss of such trees over a 50-year or less recovery period. We simply do not know.

17. We do know, however, that the Court found that the compensation due to Costa Rica was in excess of Payne and Unsworth's valuation of US\$84,296. This means that the Court's corrections to this valuation and, possibly, equitable considerations, of which the only consideration specified in the Judgment is the character of the affected area as an internationally protected wetland, account for US\$35,704 to bring the total of compensation awarded for environmental damages to US\$120,000.

⁴ Counter-Memorial of Nicaragua on Compensation (CMNC), p. 61, para. 4.43.

⁵ *Ibid.*, Ann. 2, p. 160 (Kondolf Report, 2017).

18. In my view this is a grossly inadequate valuation for environmental damage caused to an internationally protected wetland, having regard to the context of the harm caused. In my opinion a much higher compensation is warranted, one that takes account of an increased valuation of the impairment to trees, raw materials, biodiversity and gas regulation; the inclusion of a valuation for the impairment of soil formation; harm caused to the environment; the implications of the felling of trees and the destruction of undergrowth for climate change; and the gravity of an intentional harm caused to the environment of a wetland by Nicaragua.

II. INCREASED VALUATION OF THE IMPAIRMENT TO ENVIRONMENTAL GOODS AND SERVICES

19. The Court has made the following findings on impairment to environmental goods and services. First, in a case of this kind involving environmental harm the Court should make an overall assessment of damages. Second, in making this assessment the Court should be guided by equitable considerations, including the harm caused to an internationally protected wetland. Third, that Nicaragua's "corrected analysis" of Neotrópica's valuation of the loss suffered by Costa Rica for the impairment of certain goods and services in the sum of US\$84,296 underestimates the compensation due to Costa Rica. Fourth, that Nicaragua's "corrected analysis" in respect of raw materials and gas regulation is to be faulted on the ground that it values the impairment of these goods and services on a one-off basis and takes no account of the recovery period for such goods and services. Fifth, that Nicaragua's valuation of biodiversity services is defective because it fails to take account of the character of the affected area as an internationally protected wetland and the poorer nature of regrowth when compared to the pre-existing biodiversity in the area. Sixth, that Costa Rica is not entitled to any compensation for loss of natural hazards mitigation or for soil formation/erosion control. Seventh, that the felling of trees by Nicaragua is the most significant harm caused to the environment and the impairment to other goods and services flows from this harm. Eighth, that Nicaragua felled close to 300 trees in excavating the 2010 *caño* and the 2013 eastern *caño* and not 200 as argued by Nicaragua.

20. The finding of the Court that Nicaragua's "corrected analysis" of US\$84,296 underestimates the value to be placed on the impairment of environmental goods and services and has "shortcomings"

(Judgment, para. 82) is the starting-point for the Court's assessment of the overall valuation. The finishing point is the Court's determination that, having regard to these "shortcomings", the overall valuation to be placed on the environmental harm caused by Nicaragua's illegal action is US\$120,000. Unfortunately the Court gives no indication as to how the difference between these two figures of US\$35,704 was determined. Equitable considerations possibly played a role in this assessment. The character of the affected area as an internationally protected wetland was mentioned as one such consideration and presumably this was taken into account in the assessment. We also know that the Court disagreed with the conclusions of the "corrected analysis" of Neotrópica's findings on the value to be assigned to the impairment of raw materials, biodiversity and gas regulation prior to their recovery. Presumably the Court increased the sum due in the "corrected analysis" for the impairment to raw materials for one year only to take account of such a loss for a longer recovery period. Perhaps as long as 20 to 30 years, the recovery period accepted by Nicaragua? Presumably, too, the Court increased the sum allocated by the "corrected analysis" for biodiversity services to take account of the fact that the regrowth of the area would not reach its previous richness of diversity in the "near future". Again, we are not told how long this recovery is likely to take but a period of 20 years would not seem to be unreasonable in the light of the acceptance of such a recovery period by Nicaragua. Presumably the Court also increased the sum estimated by the "corrected analysis" for gas regulation and air quality services which failed to take account of the loss of future annual carbon sequestration by characterizing "the loss of those services as a one-time loss" (Judgment, para. 85). No recovery period is suggested by the Court, but again 20 years would not seem to be unreasonable.

21. I find it difficult to accept that all the above factors identified by the Court as considerations to be taken into account in reaching an overall valuation for the loss or impairment of environmental goods and services have a monetary value of only US\$35,704.

III. THE INCLUSION OF A VALUATION FOR SOIL FORMATION AND EROSION CONTROL

22. In recent years there has been considerable criticism of the Court's handling of evidence in complex factual situations and highly technical matters⁶. Much of the criticism has been directed at the lack of transpar-

⁶ See L. Malintoppi, "Fact-Finding and Evidence before the International Court of Justice (Notably in Scientific-Related Disputes)", *Journal of International Dispute Settle-*

ency displayed by the Court in its explanations of how it has evaluated the evidence and how it has reached its conclusions on disputed facts. The opaque reasoning leading to the finding of the Court that Costa Rica failed to prove that soil formation and erosion control had been impaired by Nicaragua's construction of the *caños* in 2010 and 2013 provides a further example⁷ of unsatisfactory fact-finding. This is unfortunate as Costa Rica's claim in respect of this category of impairment to goods and services was the largest: US\$1,179,924. In these circumstances one might have expected the Court to pay particular attention to providing a satisfactory explanation for its finding.

23. In this case Nicaragua did not dispute that 9,502.72 cubic metres of soil was removed from the areas affected by the construction of the 2010 and 2013 *caños*. It was agreed that the soil dredged in the *caños* had been replaced by alluvial sediment. The Parties, however, disputed whether the alluvial sediment was of poorer quality, as claimed by Costa Rica, and if so whether it was able to control erosion and to provide the same functions for the environment as the removed soil.

24. Nicaragua argued that the material which had refilled the *caños* did not differ in any meaningful way from the material that had been displaced by Nicaragua's works, claiming that Costa Rica had failed to produce site-specific samples to substantiate its submission that the alluvial sediment was of poorer quality than the soil that had been dredged by Nicaragua, making it less able to control erosion and to provide the same functions for the environment as the dredged soil. For this reason, Nicaragua submitted that Costa Rica was not entitled to any award in relation to soil.

25. While it is true that Costa Rica failed to carry out tests to prove that the dredged soil was superior to the alluvial sediment that had replaced it, it did present a report on this subject from Professor Thorne. Supported by a Ramsar Advisory Mission Report⁸, Professor Thorne maintained that

“the properties of sediment and soil differ by practically every measure of significance, due mainly to the relative absence of organic mat-

ment, Vol. 7 (2016), p. 421; J. Devaney, *Fact-Finding before the International Court of Justice*, Cambridge University Press, 2016; and A. Riddell and B. Plant, *Evidence before the International Court of Justice*, British Institute of International and Comparative Law, 2009.

⁷ See the comments on fact-finding in my separate opinion in *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicaragua)* and *Construction of a Road in Costa Rica along the San Juan River (Nicaragua v. Costa Rica)*, Judgment, I.C.J. Reports 2015 (II), pp. 859-860.

⁸ Ramsar Secretariat, “Ramsar Advisory Mission Report No. 69: North-Eastern Caribbean Wetland of International Importance, (*Humedal Caribe Noreste*), Costa Rica”, 17 December 2010, quoted in C. Thorne, Review of the report by G. M. Kondolf, Ph.D., 25 July 2017, Reply of Costa Rica on Compensation (RCRC), Ann. 2, p. 171.

ter, humus and microbial life from the former and great abundance in the latter. There is literally a biological world of difference between a body of freshly deposited river sediment (known as alluvium) and a body of mature soil . . .”⁹.

He further stated that other ingredients must be added to sediment to create soil, including particularly organic matter, and that it took time for organic matter “to rot down to produce the soil components largely responsible for making soils fertile”¹⁰. It would take decades, he continued, “before the organic content and fertility of soils currently forming from *caño*-filling sediments can approach the values characteristic of soils beneath the old growth/mature tree stands cleared by Nicaragua to make way for the *caños*”¹¹. Thorne stressed that soil reinforced by roots of live vegetation is much more erosion-resistant¹². He concluded by stating that Nicaragua’s activities had clearly impacted soil formation and erosion control. This was evidence presented by an expert who had proved to be a credible witness in the hearing on the merits on what he described as “‘classic’ soil science”¹³.

26. The Court dismissed Costa Rica’s claim for the impairment of soil formation and erosion control, holding that

“[t]here is some evidence that the soil which was removed by Nicaragua was of a higher quality than that which has now refilled the two *caños* but Costa Rica has not established that this difference has affected erosion control and the evidence before the Court regarding the quality of the two types of soil is not sufficient to enable the Court to determine any loss which Costa Rica might have suffered.”¹⁴

27. This terse conclusion raises the following question. There was a well-reasoned report by Professor Thorne on the difference regarding the two types of soil, supported by a Ramsar Report. Was it the failure of Professor Thorne to produce soil-specific samples in addition to his exposition of classic soil science that rendered his evidence insufficient to prove the different qualities of the two types of soil? Or was it that the Court found Professor Kondolf’s evidence, also unaccompanied by scientific data, more compelling. Surely, the Court is required to give some expla-

⁹ RCRC, Ann. 2, p. 171.

¹⁰ *Ibid.*, p. 172.

¹¹ *Ibid.*, p. 173.

¹² *Ibid.*, pp. 173-174. For these arguments see *ibid.*, pp. 13-14.

¹³ *Ibid.*, Ann. 2, p. 173.

¹⁴ Judgment, para. 74.