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Compensating a People for the Loss of Their Homeland: Diego Garcia, the Chagossians, and the Human Rights Standards Damages Model

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I. INTRODUCTION

¶1 In December 2005, the General Assembly of the United Nations reaffirmed the right of victims of gross human rights violations to a comprehensive set of reparations for the violations they have suffered.¹ These reparations include, but are not limited to, monetary compensation for “any economically assessable damage” they suffered as a result of the violation.² Both direct victims of the violation and indirect victims, such as family members and dependents, are entitled to these reparations.³ While the General Assembly’s 2005 resolution only addressed the rights of victims of “gross” human rights violations and “serious” violations of international humanitarian law, it makes clear that its principles and guidelines do not diminish “the right to a remedy and reparation for victims of all violations of international human rights law and international humanitarian law.”⁴

¶2 This article addresses the challenging question of how to measure the damages suffered by a people wrongfully dispossessed from their homeland. How do you measure the monetary value of such a loss? Furthermore, how do you measure the harms a dispossessed people suffer as a result of that loss? Answering these questions is a

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§ The authors wish to thank friends and colleagues who offered critical feedback and advice in drafting this article. The article also points to the limitations of the convention of ranked authorship in journal articles: All three authors deserve to be “first author” given the fully collaborative nature of our research and writing.

¹ Basic Principles and Guidelines on the Right to a Remedy and Reparation for Victims of Gross Violations of International Human Rights Law and Serious Violations of International Humanitarian Law, G.A. Res. 60/147, Principle 18, U.N. Doc. A/RES/60/147 (Dec. 16, 2005) (hereinafter “Basic Principles and Guidelines”).

² *Id.* at Principle 20.

³ *Id.* at Principle 8.

⁴ *Id.* at Principle 26.

daunting task not only because of the sheer complexity of the considerations that must be taken into account, but also because of the moral dilemma that invariably results from any attempt to assign monetary value to human life and human suffering. The truth, of course, is that money doesn't adequately measure these things. But that doesn't diminish the importance of doing the best we can, so the victims of gross human rights violations can seek fair compensation in accord with the principles set forth in the U.N. resolution described above.

¶3 This is not a mere academic pursuit. Armed and unarmed conflicts, from “low intensity” clashes to open acts of war, have affected numerous communities around the globe, producing displacement, occupation and countless human rights abuses in the affected populations. However, the true scale of the human losses people suffer when this happens remains a non-descript abstraction to anyone but those who directly suffer them. Too often what cannot be easily counted is treated by the rest of the world as though it doesn't count—especially if it happened in the past, in a faraway place, and to people considered “other” on ethnic, racial, or national grounds. As the Nobel Prize laureate in economics Daniel Kahneman reminds us, people act as though “what [we] see is all there is.”⁵ Assigning a monetary value to a loss that otherwise remains abstract and intangible is one way of helping people “see” the true scale of the loss. For dispossessed peoples, driving home to the public, governments, as well as to courts the true extent of the injuries they have suffered could prove crucial to their efforts to obtain appropriate redress for the wrongs inflicted on them.

¶4 Our goal in this article is to outline a conceptual framework that allows an objective and transparent measurement of tangible and intangible damages suffered by people who have suffered a gross human rights violation—specifically, the dispossession of people from their homeland. This framework is grounded in empirical work the authors were asked to undertake by attorneys representing the Chagossian people—the former residents of the Chagos Archipelago in the Indian Ocean who were expelled from their homeland in the late 1960s and early 1970s to make way for the construction of a U.S. military base on the largest island in the archipelago, Diego Garcia. The lawyers asked us (1) to assess whether the Chagossians could legitimately be considered an indigenous people of the Chagos Archipelago based on contemporary understandings of the term in anthropology, other social sciences, and the law; 2) to document and describe the harms the Chagossians have experienced as a result of their expulsion; and 3) to estimate the monetary value of those harms.

¶5 We have addressed each of these issues in previously published works,⁶ but we have not yet reported a monetary estimate of the Chagossians' damages. That is the task

⁵ DANIEL KAHNEMAN, *THINKING, FAST AND SLOW* (2012).

⁶ DAVID VINE, *THE FORMER INHABITANTS OF THE CHAGOS ARCHIPELAGO AS AN INDIGENOUS PEOPLE: ANALYZING THE EVIDENCE* (2003) (hereinafter “THE FORMER INHABITANTS”); DAVID VINE, S. WOJCIECH SOKOLOWKI, & PHILIP HARVEY, *DÉRASINÉ: THE EXPULSION AND IMPOVERISHMENT OF THE CHAGOSSIAN PEOPLE* (Apr. 11, 2005) (on file with American University Law School) (hereinafter “DÉRASINÉ”); David Vine, *The Impoverishment of Forced Displacement: Models for Documenting Human Rights Abuses and the People of Diego Garcia*, 13 NO. 2 HUM. RTS. BRIEF 21-24 (2006); David Vine, S. Wojciech Sokolowki, & Philip Harvey “We All Must Have the Same Treatment”: *Calculating the Damages of Human Rights Abuses for the People of Diego Garcia*, in *WAGING WAR, MAKING PEACE—REPARATIONS AND HUMAN RIGHTS* 133-151 (Barbara Rose Johnston & Susan Slyomovics, eds., 2008) (hereinafter “We All Must Have the Same Treatment”).

we undertake in this article using a revised version of the Human Rights Standards Damages Model described in earlier works.⁷ Although the monetary values estimated by the procedures outlined in this paper are specific to the case at hand, the underlying conceptual model can be applied to other cases involving similar human rights violations. Our model can be used to estimate a broad range of both tangible and intangible damages suffered by dispossessed peoples—up to and including a loss of sovereignty rights in cases where such a loss has occurred.

¶6 We begin by summarizing the Chagossians' history as a people, including their expulsion and subsequent exile from Chagos. We then discuss the model we have developed to estimate the monetary damages suffered by the Chagossians as a result of their expulsion and exile, with particular attention to the methodological choices we were forced to make due to the limited availability of relevant data. Finally, we deploy that model to produce our best estimate of the range of the Chagossians' legally cognizable damages. Using purchasing power parity (PPP) exchange rates (a method of currency conversion that more accurately reflects the comparative purchasing power of currencies and allows a foreign currency value to be expressed in terms of a hypothetical international currency—the “international dollar” or “Int'l\$”—that has the same value as the U.S. dollar), we conclude that the present value of the uncompensated damages suffered by the Chagossians from 1970 through 2008 totaled between \$5.4 billion and \$13.2 billion (expressed in 2008 international dollars). We further conclude that the Chagossians' actual damages probably fall towards the high end of that range.

¶7 The size of this damages estimate is a function of four intersecting characteristics of the harm suffered by the Chagossians:

- the severity of the losses detailed in our analysis;
- the fact that these harms include not only the losses suffered individually by each member of the Chagossian community, but also the losses they have suffered collectively as an indigenous people dispossessed of their homeland;
- the fact that both of these categories of loss have continued to accumulate as a result of the Chagossians' continuing wrongful exile; and
- the length of time this wrongful exile has continued.

¶8 The manner in which the Chagossians have and will continue to seek compensation for these damages and the right to return to their homeland is a continuing saga. Over the past fifteen years, in litigation mainly in the U.K., the Chagossians have sought to establish their right to return to their homeland and to receive compensation for the damages they have suffered as a result of their expulsion and exile. As a result of this litigation, the Chagossians have won a court determination, accepted by the U.K. government, that their expulsion from their homeland was unlawful,⁸ but they have not

⁷ *We All Must Have the Same Treatment*, *supra* note 6.

⁸ *R (Bancoult) v. Secretary of State for the Foreign and Commonwealth Office* [2001] Q.B. 1067 (holding that the ordinance promulgated by the Commissioner of the British Indian Ocean Territory (BIOT) ordering the expulsion of the Chagossian population from the Chagos islands was *ultra vires* because the Order in

yet succeeded in their efforts to win the right to return to Chagos and to obtain fair compensation for their wrongful dispossession and four-decade exile.⁹ Still, this litigation has helped the Chagossians attract attention to the U.K.'s responsibility for their plight, and the U.K. government has felt compelled to respond with promises to study the feasibility of permitting and facilitating the Chagossians' to return to their homeland.¹⁰

¶9 The United States government may also be drawn into this ongoing conflict, not only because of its complicity in the unlawful expulsion of the Chagossians from land now occupied by a U.S. military base, but because the U.S. government's *de facto* lease of that land expires in 2016 and a decision about renewing the lease must be made by the end of 2014. The Chagossians and their supporters in the U.K. can argue that the lease should not be renewed unless the U.S. government promises to allow the Chagossians to return to the islands and agrees to provide material support to make resettlement economically feasible—in compensation for the human rights violations and consequent suffering the U.S. government, in concert with the U.K. government, has inflicted on the Chagossian people.

¶10 Thus, despite the fact that we began work on our model to assist the Chagossians in proving their damages in court, the fruit of our research should prove helpful to them in other contexts as well. Whatever mix of litigation and political activity the Chagossians pursue in the future, they will continue to assert their right to compensation for the wrongs they have suffered based on the principles the United Nations has recognized as governing such cases.¹¹ Our model has allowed us to estimate the magnitude of their claims against the U.K. government (and arguably also the U.S. government) based on those principles. None of the problems the Chagossians have encountered in litigating their claims to date affects the validity of our model for that purpose, nor does it affect the usefulness of the model in estimating the damages suffered by other dispossessed

Council that established the BIOT only authorized the commissioner to legislate for “peace, order and good governance” of the territory and “[e]ach of the words ‘peace’, ‘order’ and ‘good government’ in relation to a territory necessarily carries with it the implication that citizens of the territory are there to take the benefits”).

⁹ *Chagos Islanders v. The United Kingdom*, App No. 35622/04, Eur. Ct. H.R. (2012) (dismissing the Chagossians' application to have their claims against the U.K. government heard by the Court, notwithstanding the “the callous and shameful treatment” they had received at the hands of the U.K. government). Despite their defeat in this case, the Chagossians are continuing to pursue their legal claims against the U.K. government. As of this writing, the Chagossians' leaders and their lawyers are preparing a legal challenge to the U.K. government's right to turn the Chagos Archipelago into a “marine protection area” (MPA) —with a notable exemption from environmental regulations granted to the U.S. base on Diego Garcia—without the participation of the Chagossian people and without considering their interest in resettlement on the islands. The Mauritian government is also preparing to challenge the establishment of the MPA before the Permanent Court of Arbitration in The Hague, which has jurisdiction over the U.N.'s Convention on the Law of the Sea. Chagossians and their lawyers are also lobbying the U.N. General Assembly in an effort to get a referral of their case to the International Court of Justice where they hope to get an advisory opinion concerning their treatment by the U.K. and the United States. Simultaneously, they plan to submit a petition to the European Parliament calling for recognition of the Chagossians' rights to self-determination (*see infra* text accompanying notes 56-**Error! Bookmark not defined.**42).

¹⁰ *European Court of Human Rights' decision on Chagossian Case*, FOREIGN & COMMONWEALTH OFFICE (Dec. 20, 2012), <https://www.gov.uk/government/news/european-court-of-human-rights-decision-on-chagossian-case> (expressing the U.K. government's “regret for the wrongs done to the Chagossian people over forty years ago,” and stating its desire to be “as positive as possible” in its “engagement with Chagossian groups and all interested parties” going forward).

¹¹ *See* Basic Principles and Guidelines, *supra* note 1.

populations. Obtaining compensation for human rights violations of this type will continue to be exceptionally difficult. Nevertheless, furnishing the victims of such abuses with well-grounded estimates of the legally compensable damages they have suffered should make it easier for them to seek compensation. It will also help educate the public concerning the social cost of human rights violations while simultaneously putting governments on notice concerning the extent of their liability if called to account for such violations.

II. THE CHAGOSSIANS

¶11 Beginning in the late 18th century, Franco-Mauritian plantation owners brought the enslaved African ancestors of today's Chagossians to work on coconut plantations in the previously uninhabited Chagos Archipelago.¹² After slavery was abolished in the 1830s, the owners started importing indentured laborers from India to supplement the labor force.¹³ Over the course of the 19th and 20th centuries, this diverse workforce developed into a distinct people known initially as the *Ilois* (the Islanders).¹⁴

¶12 In 1965 the U.K. separated Chagos from colonial Mauritius at the urging of the U.S. Since then the Chagos Archipelago has comprised a freestanding colony known as the British Indian Ocean Territory (BIOT).¹⁵ The purpose of this redrawing of borders was to create an easily depopulated colony for the establishment of U.S. military bases.¹⁶ A confidential 1966 agreement between the U.S. and the U.K. provided for the use of "administrative measures" to remove the local population.¹⁷ A secret U.S. payment of \$14 million was made to carry out this plan.¹⁸

¶13 The administrative measures meant that beginning in 1967, Chagossians leaving Chagos for medical treatment or regular vacations in Mauritius were denied the right to return to Chagos.¹⁹ Pursuant to this policy, Chagossians who left the islands were effectively marooned over 1,200 miles from their homes, often without family members or any of their possessions.²⁰ The British also began restricting the importation of supplies to Chagos, and by the turn of the decade more Chagossians were leaving as food and medicines became scarce. British officials, who referred to the Chagossians in confidential memoranda as "Tarzans" and "man Fridays,"²¹ meanwhile designed a public relations plan aimed, as one official put it, at "maintaining the fiction" that the

¹² DAVID VINE, *ISLAND OF SHAME: THE SECRET HISTORY OF THE U.S. MILITARY BASE ON DIEGO GARCIA* 72-80 (2009).

¹³ *Id.*

¹⁴ The term has fallen out of favor in exile with many Mauritians using it as a derogatory term of abuse.

¹⁵ VINE, *ISLAND OF SHAME*, *supra* note 12, at 82-84.

¹⁶ *Id.* at 72-82.

¹⁷ Letter from Alun Gwynne Jones Chalfont, Foreign and Commonwealth Office, to David K. E. Bruce, United States Ambassador to the United Kingdom (Dec. 30, 1966) (on file with National Archives and Records Administration); *see also* VINE, *ISLAND OF SHAME*, *supra* note 12, at 86-88.

¹⁸ VYTAUTAS BANDJUNIS, *DIEGO GARCIA: CREATION OF THE INDIAN OCEAN BASE* (2001).

¹⁹ VINE, *ISLAND OF SHAME*, *supra* note 12, at 90-93.

²⁰ *Id.* at 93-94.

²¹ *Regina v. Secretary of State for the Foreign and Commonwealth Office*, [2006] EWHC 1038, ¶ 27.

Chagossians were transient contract workers rather than a people with roots in Chagos dating back more than five generations.²²

¶14 In 1971, the U.S. Navy began construction of a secretive military base on Diego Garcia, home to the majority of Chagossians.²³ Anxious to complete the expulsion, the U.S. demanded the British complete the removals.²⁴ British agents and U.S. naval personnel started by herding up the Chagossians' pet dogs and gassing them to death in sealed factory sheds while their traumatized owners looked on.²⁵ Between 1971 and 1973, the U.K. Government forced the remaining islanders, first on Diego Garcia and then on the remaining islands, to board overcrowded cargo ships and transported them to Mauritius and the Seychelles.²⁶ There, the Chagossians were left, literally, on the docks with no resettlement assistance. Quickly exhausting whatever resources they brought with them, the Chagossians descended into poverty.²⁷ Originally numbering about 1,500-2,000, the Chagossian population has grown to more than 5,000 persons today. As a group, they remain impoverished, with most still living among the poorest of the poor in the slums of Mauritius and the Seychelles, island nations better known as exotic tourist destinations.²⁸

¶15 In 1978 and 1982, five and ten years after the last group of Chagossians was expelled, some Chagossians in Mauritius received token compensation payments from the British government. The compensation, in land, housing, and cash, totaled less than \$6,000 per adult recipient.²⁹ Chagossians living in the Seychelles received no compensation. Many used the money to pay off debts accrued since the expulsion, and for most Chagossians, conditions improved only marginally.

¶16 In 1997, a World Health Organization-funded report found that most Chagossians were "still housed in tin shacks in the disadvantaged slums" of the Mauritian capital, Port Louis "without regular incomes and without real access to education or health care."³⁰ Our own survey conducted over a 16-month period in 2002-2003 found that Chagossians' daily per capita income was around \$2.50 expressed in 2008 international dollars.³¹ Over the same period, the U.S. installation on Diego Garcia has become a multi-billion dollar Navy and Air Force base. It has played key roles in supporting U.S. combat in Iraq and Afghanistan and also likely served as one of the CIA's notorious "black sites" for the detention of captured terrorist suspects.³² Other than military personnel, the only people living in Chagos today are civilian contractors who work on the U.S. military base. These

²² Letter from A. I. Aust, Foreign and Commonwealth Office, to Mr. Knight, Foreign and Commonwealth Office (Jan. 16, 1970) (on file with U.K. Public Records Office).

²³ VINE, ISLAND OF SHAME, *supra* note 12, at 103-109.

²⁴ *Id.* at 110-11.

²⁵ *Id.* at 112-14.

²⁶ *Id.* at 118-20.

²⁷ *Id.* at 126-63.

²⁸ More than 1,000 Chagossians now live in the U.K., having moved there since most members of the community won full U.K. citizenship rights in 2002.

²⁹ MAURITIUS LEGISLATIVE ASSEMBLY, REPORT OF THE SELECT COMMITTEE ON THE EXCISION OF THE CHAGOS ARCHIPELAGO 3-5 (June 1983).

³⁰ TANIA DRAEBEL, EVALUATION DES BESOINS SOCIAUX DE LA COMMUNAUTE DEPLACÉ DE L'ARCHIPEL DE CHAGOS, VOLET UN: SANTE ET EDUCATION 4 (Dec. 1997).

³¹ After additional data cleaning, this statistic updates that reported in *DÉRASINÉ*, *supra* note 6.

³² See generally VINE, ISLAND OF SHAME, *supra* note 12.

contractors include Mauritians, Filipinos, and Sri Lankans among others. Chagossians have been categorically prevented from working on the island.³³

¶17 Since their expulsion, the Chagossians have struggled, protested, held hunger strikes and litigated³⁴ to win the right to return to their homeland, to work as contractors on the U.S. military base, and to receive fair compensation for their expulsion—all to little or no avail. Our personal involvement in these cases began in August 2001, when the Chagossians' U.S. lawyer, Michael Tigar, asked us to document the effects of the Chagossians' expulsion and estimate their legally cognizable damages. Since that time, we have completed a large-scale quantitative survey of 328 islanders, ethnographic participant-observation over more than eight months living among Chagossians living in Mauritius and the Seychelles, and the review of thousands of pages of archival and government documents.³⁵

III. MEASURING THE COMPENSATORY DAMAGES OWED TO A PEOPLE FOR VIOLATIONS OF THEIR HUMAN RIGHTS: THE HUMAN RIGHTS STANDARDS DAMAGES MODEL

¶18 Our work constructing a damages model to fairly assess the magnitude of the harms suffered by the Chagossians as a result of their expulsion has been guided by the principles articulated in the United Nations resolution cited at the beginning of this article. First, it is important to emphasize that the reparations the Chagossians are entitled to receive are not limited to the monetary compensation our damages model is designed to estimate. Second, our measure of damages references not only those harms directly attributable to the Chagossians' expulsion (a gross violation of their human rights) but also to the consequential harms they have suffered as a result of their four-plus decade exile. Other parties in addition to the U.K. and the U.S. may share responsibility for inflicting these consequential harms on the Chagossians, but it was the original expulsion that put the Chagossians in harm's way. Finally, it also is important to note that our damages model is designed to assess not only the damages individually suffered by the approximately 1,500-2,000 Chagossians who were expelled from Chagos in the late 1960s and early 1970s, but also by their descendants as indirect victims of the expulsion.³⁶ It is the difference between the lives the Chagossians have actually led over the past four-plus decades and the lives they would have led if the U.K. (and U.S.) had fully performed their human rights obligations that we believe constitutes the proper measure of the Chagossians' legally compensable damages. That is why we refer to our model as a "human rights standards damages model."

³³ Larry W. Bowman & Jeffrey A. Lefebvre, *The Indian Ocean: U.S. Military and Strategic Perspectives*, in *THE INDIAN OCEAN: PERSPECTIVES ON A STRATEGIC ARENA* n.28 (William L. Dowdy & Russell B. Trood, eds., 1985); *60 Minutes: Diego Garcia* (CBS television broadcast June 15, 2003). In the past few years, a handful of Chagossians have worked on the island.

³⁴ See *Regina*, *supra* note 21; *Chagos Islanders*, *supra* note 9.

³⁵ We are not and have never been employed or paid for the work. The U.S. legal team reimbursed most research expenses during August 2001-December 2002, and some research expenses during 2004.

³⁶ The United Nations has expressly recognized the right of indirect victims of gross human violations to compensation. See *Basic Principles and Guidelines*, *supra* note 1. Whether particular courts would recognize this principle depends on their own jurisprudence, but we think the General Assembly's endorsement of the principle makes it essential that we include descendent damages in our model.

¶19 Our model divides the harms the Chagossians have suffered into two broad categories. The first consists of what was taken from them—the individual and collective possessions that comprised their homeland. These possessions include their family homes, the plots of land on which their homes sat, and the personal possessions they were forced to leave behind. It also includes the villages and wider island community in which they lived together as a distinct people with their own society and culture. Finally, it includes the islands themselves—the geographic space comprising their homeland, whose soil and water provided them sustenance, enjoyment, and beauty.

¶20 The second major category of harms suffered by the Chagossians consists of the losses and suffering they have endured in the aftermath of their expulsion. Both U.K. and U.S. officials have acknowledged in internal communications the inadequacy of their resettlement efforts on behalf of the Chagossians. A State Department official acknowledged that, “[i]n order to meet our self-imposed timetable, their evacuation was undertaken with a haste which the British could claim has prevented careful examination of resettlement needs.”³⁷ In 1972, the U.S. embassy in Mauritius wrote to the State Department: “[t]o our knowledge, there exists no operative plan and no firm allocation of funds to compensate them for the hardship of the transfer from their former home and their loss of livelihood.” The embassy described the U.K.’s efforts to pay the newly independent government of Mauritius to assume responsibility for the resettlement as “foredoomed.”³⁸

¶21 Eventually the British government paid the Mauritians £650,000 to resettle the Chagossians. British officials recognized, however, that the project was “under-costed” for anything like an adequate resettlement. Describing the likely success of the resettlement plan, the U.S. embassy simply said, “We doubt it.”³⁹ In any event, the resettlement project was never implemented, and the Chagossians saw almost none of the £650,000 until 1978 when it proved “hopelessly inadequate.”⁴⁰

¶22 That the Chagossians’ forcible removal caused their subsequent impoverishment is further supported by research aggregating findings from hundreds of forcibly displaced groups around the globe, including peoples pushed off their lands by dam construction, warfare, environmental disasters, and other causes. This research has come to an unambiguous conclusion: absent proper resettlement programs, involuntary displacement generally causes “the impoverishment of considerable numbers of people.”⁴¹ Finally, a significant body of research in addition to our own has confirmed that finding with respect to the Chagossians in particular.⁴²

³⁷ Letter from William D. Brewer to James K. Bishop, Jr. (Feb. 1, 1972) (on file with author).

³⁸ Memorandum from William D. Brewer to U.S. Department of State (Dec. 20, 1971) (on file with author).

³⁹ Airgram from Henry Precht to U.S. Department of State (May 2, 1972) (on file at National Archives and Records Administration).

⁴⁰ JOHN MADELEY, MINORITY RIGHTS GROUP LTD. REPORT NO. 54, DIEGO GARCIA: A CONTRAST TO THE FALKLANDS 7 (1985).

⁴¹ Michael Cernea, *Anthropological and Sociological Research for Policy Development on Population Resettlement*, in ANTHROPOLOGICAL APPROACHES TO RESETTLEMENT: POLICY, PRACTICE, AND THEORY 12 (Michael M. Cernea & Scott E. Guggenheim, eds., 1993).

⁴² *Diego Garcia, 1975: The Debate over the Base and the Island’s Former Inhabitants: Hearing Before the Special Subcomm. on Investigations of the H. Comm. on Int’l Relations*, 94th Cong. 112-121 (1975); A.R.G. PROSSER, VISIT TO MAURITIUS, FROM 24 JANUARY TO 2 FEBRUARY: MAURITIUS-RESETTLEMENT OF PERSONS TRANSFERRED FROM CHAGOS ARCHIPELAGO (1976); FRANCOISE BOTTE, THE ‘ILOIS’ COMMUNITY AND THE ‘ILOIS’ WOMEN (1980) (unpublished manuscript, on file with author); HERVE SYLVA, REPORT ON

¶23 The consequential damages suffered by the Chagossians accordingly include the real income they have lost; the invidious discrimination they have endured; the health problems, joblessness, and homelessness they have suffered; their lost quality of life and cultural heritage; and a myriad of other social and psychological injuries including the alienation, marginalization, and profound sadness (depression) that has plagued so many of them in exile.

¶24 The degree to which the monetary value of these harms can be estimated varies depending on the nature of the harm and the availability of data. Our damages model undertakes to estimate the value of the losses the Chagossians have suffered where that is possible. Where it is not, we propose a straightforward methodology borrowed from U.S. law for the estimation of hard-to-quantify consequential damages such as premature deaths, increased health problems, psychological damage, and emotional suffering.

¶25 Finally, we have used more than one method of conceiving and measuring particular categories of harm whenever we could. These comparisons are useful both as a check on the reliability of our estimates and as a means of highlighting the strengths and weaknesses of different estimation methodologies. Where different estimation methodologies are deployed, we indicate the method we think provides the most accurate estimate of the Chagossians' actual damages and explain the basis of our opinion.

A. *Lost Individual and Collective Land-Based Rights*

¶26 In Chagos, the islanders controlled the land on which their houses sat and the land around their homes which they used both for subsistence and small-scale commercial gardening and animal husbandry. This control of the land was established when the Chagossians' enslaved ancestors were first brought to the islands in the late 18th century and continued following the end of slavery.⁴³ In many cases, Chagossian families occupied the same land for generations, far longer than the 30 years required for them to establish their possessory interest in the land they occupied under the French Napoleonic Code, which remained the law of Chagos after France's cession of Mauritius and its dependencies to the U.K. in 1815 following Napoleon's defeat.

¶27 Young adults also had the right to leave their family homes and claim unoccupied community land, building new homes with construction materials provided as an employee benefit by the plantation owners for whom they worked. In addition to having personal and family-held lands, Chagossians also enjoyed unrestricted communal access to a wide range of natural resources on and surrounding the islands themselves. In addition to the free use of quasi-public lands in and around their settlements, this included a right, for personal use, to the coconut products and byproducts produced on the islands plantations, and unrestricted access to the island's abundant sea-bird populations, their seafood-rich waters and beaches, the archipelago's many uninhabited

THE SURVEY ON THE CONDITIONS OF LIVING OF THE ILOIS COMMUNITY DISPLACED FROM THE CHAGOS ARCHIPELAGO (1981); MADELEY *supra* note 40; DRAEBEL, *supra* note 30; C. ANYANGWE, QUESTION OF THE CHAGOS ARCHIPELAGO: REPORT ON THE FACT-FINDING MISSION TO MAURITIUS (2001); DÉRASINÉ, *supra* note 6.

⁴³ Each enslaved person in Chagos was allowed to maintain a "*petite plantation*" —literally, a small plantation—to raise crops and animals, and to save small sums of money from their sale. Letter from Lapotaire et al. to Mauritius Colonial Government (Oct. 8, 1828) (on file at Mauritius Archives); *see also*, ROBERT SCOTT, LIMURIA: THE LESSER DEPENDENCIES OF MAURITIUS 105 (1976).

islands, and the largest (and among the healthiest) submerged coral bank systems in the world.⁴⁴ The deep connection the Chagossians developed with the land and waters of their homeland comprised a fundamental part of their cultural heritage, their way of life, and their subsistence. It is irreplaceable and possesses a value to them that is beyond measure. The deep value the Chagossians attach to living in their *ter natal*, their natal land, is amply demonstrated by their longstanding efforts, since the earliest days of their expulsion, to win the right to return.

1. Estimating the Extent of the Chagossians' Individual and Collective Land Holdings

¶28 As noted above, the Chagossian population derived benefits from their attachment to their homeland that went well beyond the benefits they derived from the discrete portions they individually controlled. Nevertheless, the value of their individual land holdings and the value of the free use they enjoyed of the land and waters around them constitute an important element of what they lost as a result of their expulsion and, hence, of the compensable damages they suffered.

¶29 Estimating the size of Chagossians' land holdings—including land they owned, land to which they had unrestricted access for their individual and collective use, and land to which they could claim collective communal title as the indigenous people of Chagos—is difficult given the informal nature of their control of land across multiple generations, the lack of formal land titles or accurate maps indicating land holdings, and the lack of a local government exercising control over communally-held territory. Although we asked Chagossians in our 2002-2003 survey to estimate the size of their individual household land holdings,⁴⁵ we believe a more accurate estimate of their holdings is provided by statistics on the plantation company's use of island land. British government statistics show that as of 1969, a year after the start of the expulsion process, the plantation company maintained 93.2 percent of the acreage in Chagos under cultivation.⁴⁶ We believe it is reasonable to assume that the Chagossians had either individual or collective possessory interests in the remainder of the land in Chagos, 6.8 percent, either as personally held land or as land to which they had free access and free economic use. This yields a collective land holding of 1,014 acres out of a total of 14,826 in Chagos (see Table 1).

⁴⁴ VINE, ISLAND OF SHAME, *supra* note 12, at 50-87.

⁴⁵ The survey indicated a median household land holding of 720m². Unfortunately, however, this finding left us no way to estimate the size of communally held lands, while also being relatively unreliable given that it was based on respondents' four-decades'-old memories. These shortcomings led us to use statistics on the plantation company's land holdings to estimate the size of land controlled by Chagossians.

⁴⁶ JOHN TODD, NOTES ON THE ISLANDS OF THE BRITISH INDIAN OCEAN TERRITORY (1969); NOTES ON A VISIT TO CHAGOS BY THE ADMINISTRATOR, BRITISH INDIAN OCEAN TERRITORY (1969). Statistics reporting land under cultivation are only available for Diego Garcia and Peros Banhos. We assume that the land under cultivation in Salomon was comparable to that in the other islands and thus apply the percentage of land under cultivation in Diego Garcia and Peros Banhos to the whole archipelago.

Table 1: Land Controlled by Chagossians in Chagos (acres)

Total land area, Chagos Archipelago	14,826
Total land area, Diego Garcia	8,700
Total land area under cultivation, Diego Garcia	8,000
Total land area, Peros Banhos	3,000
Total land area under cultivation, Peros Banhos	2,900
Percentage of total land area under cultivation, Diego Garcia + Peros Banhos ⁴⁷	93.2%
Percentage of land to which Chagossians had free access and free economic use, Diego Garcia + Peros Banhos	6.8%
Total land owned individually by Chagossians or to which they claimed title as sovereigns of their homeland (6.8% of 14,826). (Note: does not include land under cultivation or sea territory over which they had rights of sovereignty.)	1,014

¶46 This calculation slightly overestimates Chagossian land holdings insofar as it does not account for plantation buildings that occupied some of the land not under cultivation, but it includes a far more significant downward bias because it does not account for the lagoons and ocean waters around the islands to which Chagossians had free access for fishing, recreational, and economic development purposes, nor the plantation lands under cultivation to which the people had access for recreational purposes and for harvesting products for personal use (e.g., free coconuts and coconut byproducts).

2. Estimating the Value of the Chagossians' Land Holdings and Land-Based Rights

¶47 The next step in our analysis was to estimate the value of the Chagossians' interest in these 1,014 acres of land. This was a challenging exercise on several counts. First, there is the absence of a functioning real estate market in Chagos, both prior to the expulsion and presently, that could indicate the value of land in the archipelago. Second, in the absence of a real estate market, there is the inherent challenge of determining the value of beautiful, isolated tropical islands hosting a U.S. military base in the middle of the Indian Ocean. Third, estimating the value of individual and collective land-based losses the Chagossians have suffered is rendered still more difficult because that calculation is necessarily affected by the sovereignty interests enjoyed by the Chagossians as the archipelago's indigenous people.⁴⁸ That is, calculating the value of their land is far more complicated than determining the value of a real estate parcel upon which one might build a house. It is more complicated because of the relationship between the Chagossians, as the indigenous people of Chagos, and the islands and waters comprising their patrimony.

¶48 While popular ideas about indigeneity may lead some to question the Chagossians' indigenous status, a systematic review of current understandings of the "indigenous peoples" concept in international law, anthropology, and related social sciences strongly

⁴⁷ See *supra* text accompanying note 46 on the omission of Salomon Atoll and its 2,000 acres of total land area.

⁴⁸ THE FORMER INHABITANTS, *supra* note 6.

suggests that the Chagossians are the indigenous people of the Chagos Archipelago. According to the most widely-accepted definitions of the indigenous peoples concept, self-identification is a fundamental (increasingly, the fundamental) criteria for determining if a group is an indigenous people. Indeed, Chagossians have consistently self-identified as the indigenous people of the Chagos Archipelago.⁴⁹ Identification by others, including other indigenous peoples, constitutes another form of evidence, and the Chagossians have been thus recognized by indigenous peoples at the United Nations,⁵⁰ by the British High Court,⁵¹ and by scholars,⁵² among others.

¶49 The Chagossians also fulfill other major definitional criteria in that 1) they have an ongoing, historical and ancestral connection with the Chagos Archipelago and its first inhabitants dating to around 1783; 2) no other group claims a prior historical or ancestral relationship to the previously uninhabited islands; 3) they are a socially and culturally distinct people with their own language and other distinguishing features; and 4) they are non-dominant in the societies where they reside.

¶50 The Chagossians' status as an indigenous people—and, more broadly, as a people—then affords them rights to sovereignty and self-determination enshrined in international law. The United Nations Declaration on the Rights of Indigenous Peoples states plainly that, “Indigenous peoples have the right to self-determination. By virtue of that right they freely determine their political status and freely pursue their economic, social and cultural development.”⁵³ Furthermore, “[i]ndigenous peoples, in exercising their right to self-determination, have the right to autonomy or self-government in matters relating to their internal and local affairs, as well as ways and means for financing their autonomous functions.”⁵⁴ Finally, “[i]ndigenous peoples have the right to maintain and strengthen their distinct political legal, economic, social and cultural institutions, while retaining their right to participate fully, if they so choose, in the political, economic, social and cultural life of the State.”⁵⁵

¶51 Similarly, as a “people,” the Chagossians enjoy rights to sovereignty and self-determination enshrined in the United Nations Charter.⁵⁶ Article 1 of the International Covenant on Civil and Political Rights⁵⁷ and the International Covenant on Economic, Social and Cultural Rights⁵⁸ provide further guidance concerning the collective rights of the Chagossian people to their island homeland.⁵⁹

⁴⁹ *Id.* at 44-48.

⁵⁰ See e.g., *United Nations Working Group on Indigenous Populations 20th Anniversary Session: Geneva 22-26*, SOL-UN PROJECT (2002), <http://www.sol-un.org/bulletin2002/SolWGIP02EnDay2AM.rtf>.

⁵¹ R (Bancoult), *supra* note 8.

⁵² “It is clear that from an anthropological point of view the Ilois constituted an indigenous population with a unique culture.” IAIN WALKER, *THE COMPLETE GUIDE TO THE SOUTHWEST INDIAN OCEAN* 566 (1993).

⁵³ United Nations Declaration on the Rights of Indigenous Peoples, G.A. Res. 61/295, Article 3, U.N. Doc. A/RES/61/295 (Sep. 13, 2007).

⁵⁴ *Id.* at Article 4.

⁵⁵ *Id.* at Article 5.

⁵⁶ U.N. Charter arts. 2 & 55 (affirming “respect for the principle of equal rights and self-determination of peoples” as a guiding purpose of the United Nations).

⁵⁷ International Covenant on Civil and Political Rights, Dec. 16, 1966, S. Treaty Doc. No. 95-20, 6 I.L.M. 368, 999 U.N.T.S. 171 (1967).

⁵⁸ International Covenant on Economic, Social and Cultural Rights, Dec. 16, 1966, S. Treaty Doc. No. 95-19, 6 I.L.M. 360, 993 U.N.T.S. 3 (1967).

⁵⁹ Article 1.

¶52 The sovereignty interests described in the Covenants are based partly on economic and partly on non-economic considerations.⁶⁰ The economic benefits of sovereignty are illustrated by the value of mineral and other natural resource concessions, but similar benefits can flow from virtually any type of economic activity. The political benefits of sovereignty are harder to quantify, but they are nonetheless real, extending from the opportunity to govern oneself and control one's affairs to the social, cultural, and psychological dimensions of maintaining sovereignty. Even further, the right to live in a territory is valuable whether or not you own property in that territory or exercise any rights of sovereignty within the territory's political system. Simply stated, it would cost more to obtain a person's consent to relinquish her or his right to live in a particular community than it would cost simply to buy his or her house or even to give up his or her voting rights in that community.

¶53 In sum, there are three categories of loss affecting our estimate of the value of the Chagossians' land losses: (1) the market value of the possessory interests they enjoyed in the islands prior to their expulsion, which can be analogized to the value of an individual's loss of a home in a particular territory; (2) the value of the Chagossians' collective interest in the economic development and political identity of the islands as the archipelago's indigenous people, which can be analogized to a population's loss of political and economic sovereignty over the territory in which they live; and (3) the economic and psychic value of the right to live in and use the islands, which can be analogized to a population's loss of the right to live in and use a territory whether or not they enjoy formal citizenship or other sovereignty rights in the territory. Each of these

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1. All peoples have the right of self-determination. By virtue of that right they freely determine their political status and freely pursue their economic, social and cultural development.
 2. All peoples may, for their own ends, freely dispose of their natural wealth and resources without prejudice to any obligations arising out of international economic co-operation, based upon the principle of mutual benefit, and international law. In no case may a people be deprived of its own means of subsistence.
 3. The States Parties to the present Covenant, including those having responsibility for the administration of Non-Self-Governing and Trust Territories, shall promote the realization of the right of self-determination, and shall respect that right, in conformity with the provisions of the Charter of the United Nations.

International Covenant on Civil and Political Rights, *supra* note 57, art. 1; International Covenant on Economic, Social and Cultural Rights, *supra* note 58, art. 1.

⁶⁰ The fact that the Chagossians have never been permitted to exercise actual political sovereignty over their homeland is typical of indigenous peoples subject to colonial rule. It certainly does not diminish their right to self-determination under international law—that is, their right to determine whether they will exercise their sovereignty over their homeland by asserting its political independence or by agreeing, on the basis of freely negotiated terms, to join another political entity. Interestingly, the U.K. government has relied on the right to self-determination of the approximately 2,800 residents of the Falkland Islands to justify its rejection of Argentina's claim of sovereignty over the islands. The U.K. press has commented on the irony of the government's reliance on the right to self-determination of the Falkland Islanders while rejecting the right of the Chagossians to any say whatsoever in either the governance of the BIOT or in the determination of its international political status. *See, e.g., The Falklands: Another Way Forward*, THE GUARDIAN (Jan. 3, 2013), <http://www.theguardian.com/uk/2013/jan/03/falklands-sovereignty-treaty> (comparing “Britain’s blanket refusal to discuss the sovereignty of the Falklands” with “its attitude to another group of islanders, over whose trampled rights it continues to shed few tears,” and asking, “Does not the very same UN principle of self-determination, cited so forcibly by Mr Cameron in relation to the Falkland Islanders, apply to them too?”).

land-based interests has value independent of the other two, and the Chagossians have suffered the loss of all three.

3. Estimating the Value of a People's Homeland

¶54 In the course of our work, we explored several possible methods for estimating the value of the land holdings and land-based rights the Chagossians lost as a result of their expulsion. We first considered whether the monetary transactions involved in the creation of the BIOT and the establishment of the U.S. military base on Diego Garcia could be used for this purpose. These transactions included the £660,000 the U.K. paid Chagos's plantation owners in 1967 as compensation for seizing the islands; rental payments made by the plantation owners to the U.K. after the sale; the \$14 million the U.S. secretly paid the U.K. for setting up the BIOT, removing the Chagossians, and allowing the U.S. to occupy and construct a base on Diego Garcia; and £3 million the U.K. paid Mauritius around 1965 as compensation for removing Chagos from Mauritian territory.

¶55 We rejected this method of valuing the Chagossians' loss because proper land valuation requires a record of arms-length transactions between relative equals in a functioning market. These transactions (especially those between the U.K. and Mauritius and between the U.K. and the plantation company) possessed none of these attributes. Specifically, the £660,000 the U.K. paid the plantation owners was not a negotiated price arranged by equals, but instead was effectively imposed by British officials on the owners with little negotiation at all. The rental payments made by the company that ran the islands is even more inappropriate because the "rent" was based on a percentage of the company's income during a period when the islands were being intentionally run into the ground. The \$14 million the U.S. paid the U.K. is also not an adequate basis for estimating land value because it has never been considered either a "rent" or purchase price. The payment itself was arranged by deleting certain "research and development costs" owed by the U.K. to the U.S. and was part of a much larger and more complex political, economic, and diplomatic arrangement between the countries. Finally, the £3 million the U.K. paid Mauritius is even more inappropriate as it was not a negotiated price but was instead imposed on Mauritius during its independence negotiations.⁶¹ In sum, none of these transactions provided a sound basis for estimating the value of the Chagossians' lost land holdings and land-based rights in their homeland.

¶56 Since conventional market-based methods of estimating land values proved to be inadequate for our purposes, we looked for alternative methodologies that are used in determining the value of non-market assets. The literature identifies two broadly-defined approaches to estimating the economic value of such assets: the market replacement (or market substitute) approach and the contingency valuation approach.⁶² The first approach

⁶¹See VINE, ISLAND OF SHAME, *supra* note 12.

⁶² These methods have been developed in a variety of contexts but are generally applicable for use in estimating the value of any asset that is not regularly bought and sold. For an overview of different approaches to valuing environmental damage see ECOSYSTEM VALUATION, <http://www.ecosystemvaluation.org/index.html>; in real estate: Bill Mundy & Dave McLean, *The Addition of Contingent Valuation and Conjoint Analysis to the Required Body of Knowledge for the Estimation of Environmental Damage to Real Estate*, 1 J. OF REAL ESTATE PRAC. AND EDUC. 1 (1998); Dave McLean, Bill Mundy & John A. Kilpatrick, *Summation of Evidentiary Rules for Real Estate Experts Mandated by Daubert v. Merrill Dow Pharmaceuticals, Real Estate Issues*, 3 REAL ESTATE ISSUES 24 (1999); in leisure

involves a comparison of the non-market asset (the target asset) to an analogous asset exchanged in the market (the reference asset), observing the actual market value of that asset, and applying the observed market value to the non-market asset. This comparison may focus on different aspects of market value (e.g., market price, market cost of producing or procuring an asset, or the market value of consequential outcomes of using the asset in question). Since the reference asset may not have the exact qualities of the target asset, this approach may require an adjustment for differences in the attributes and qualities of assets involved in the comparison (known as hedonic pricing or hedonic valuation), which can significantly vary in its complexity. However, regardless of which particular methodology is employed, the estimated value of the non-market asset in this approach is always a derivative of the actually observed market value of the reference asset.

¶57 The second approach to the valuation of non-market assets involves an assessment of the stated willingness to pay for the non-market good, and it is referred in the literature as the “contingent valuation” approach. In contrast to the previously discussed approach, which relies on actually observed market values, contingent valuation relies on a hypothetical value (i.e., one that does not involve any actual market transactions) determined by querying people thought to have financial stakes in the good in question. The advantage of this approach is its applicability to anything of potential value, even unique assets that have no obvious market substitutes. However, contingent valuation method has been criticized by economists who argue that the hypothetical value declared by survey respondents is an arbitrary number that has little relation to the actual market value determined by supply and demand. Nonetheless, a careful survey design can reduce this potential discrepancy, and this method is widely used in legal practice and assessing environmental damage.

¶58 We decided to use the market replacement approach as the more reliable valuation method in this case. Querying an impoverished population like the Chagossians as to what they would be willing to pay for their lost homeland or what they would be willing to accept in payment for it is unlikely to produce a reliable estimate of its actual value.

time: Larson, Douglas M., Sabina L. Shaikh & David F. Layton, *Revealing Preferences for Leisure Time From Stated Preferences Data*, 86 AM. J. OF AGRICULTURAL ECON. 307, 308-320 (2004); Alvarez-Farizo, Begona, Nick Hanley & Ramon Barberan, *The Value of Leisure Time: A Contingent Rating Approach*, 44 J. OF ENVIRON. PLANNING AND MGMT. 681, 682-699 (2001); Wiktor Adamowicz et al., *Stated Preference Approaches for Measuring Passive Use Values: Choice Experiments and Contingency Valuation*, 80 AM. J. OF AGRICULTURAL ECON. 64 (1998); in unpaid work: Eleanor Brown, *Assessing the Value of Volunteer Activity*, 28 NONPROFIT AND VOLUNTARY SECTOR Q. 3 (1999); Luisella Goldschmidt-Clermont, *Monetary Valuation of Non-Market Productive Time Methodological Considerations*, 39 REV. OF INCOME AND WEALTH 419 (1993); Femida Handy, *THE PRICE OF VIRTUE: THE ECONOMIC VALUE OF THE CHARITABLE SECTOR*, 32 NONPROFIT AND VOLUNTARY SECTOR Q. 481 (2003); Laurie Mook et al., *Accounting for the Value of Volunteer Contributions*, 15 NONPROFIT MGMT. & LEADERSHIP 405, 406-15 (2005); see also BEYOND THE MARKET: DESIGNING NONMARKET ACCOUNTS FOR THE UNITED STATES (Katharine G. Abraham & Christopher Mackie eds., 2005); JOSEPH E. STIGLITZ, AMARTYA SEN, & JEAN-PAUL FITOUSSI, REPORT BY THE COMMISSION ON THE MEASUREMENT OF ECONOMIC PERFORMANCE AND SOCIAL PROGRESS (2009), <http://www.stiglitz-sen-fitoussi.fr/en/index.htm>; JACK QUARTER ET AL., WHAT COUNTS: SOCIAL ACCOUNTING FOR NONPROFITS AND COOPERATIVES (2002).

While certainly not ideal, the market replacement approach allowed us to rely on more objectively verifiable valuations of similar, if not exactly comparable, assets.⁶³

¶59 Estimating the value of the Chagossian homeland in this way involved three tasks:

- identifying arms-length transactions between sovereign parties that involved the acquisition of the kind of property and property rights the U.S. acquired in Chagos;
- identifying reliable information about the actual value of the property and property rights involved in the transaction; and
- estimating the value of Chagossian property and property rights by making appropriate adjustments for differences in the attributes and qualities of the assets involved in the comparison.

¶60 That is, we looked for transactions between nation states or similar entities in which rights to establish or maintain a military base on a small, tropical island were either acquired or ceded. We then obtained information about the monetary value exchanged in consideration of these rights and made the necessary adjustments to scale that value to the Chagossians' case. After considering numerous locations, we found two that we think substantially satisfy these conditions. The first is Kwajalein Atoll, a small and lightly populated Pacific archipelago that is part of the Republic of the Marshall Islands (RMI) and the site of a major U.S. military base and missile testing area. The second is Japan's Okinawa Island, which lies far from the main islands of Japan, has a population of over 1 million that constitutes less than 1 percent of Japan's total population, and hosts several large U.S. military bases. In addition to the geographic similarities among the islands, Kwajalein and Okinawa provide comparable land transactions involving U.S. military bases.

¶61 These transactions consist of (1) annual rental payments made by the U.S. to the RMI for the U.S. military's use of Kwajalein Atoll and 2) Japan's 2006 agreement to pay the United States \$6.09 billion to reclaim land occupied by U.S. bases on Okinawa and help move U.S. troops to Guam. The functional similarity between the islands and these transactions allowed us to account for the three categories of loss suffered by the Chagossians—their private possessory interests, their collective sovereignty interests, and their social, cultural and economic interests in being able to reside on the islands. This, we believe, provides the best means of estimating the value of the Chagossians' lost land holdings.

4. The Kwajalein Atoll Comparison.

¶62 The U.S. has a military base on Kwajalein Island (the largest island in the Kwajalein atoll group) known as the Ronald Reagan Ballistic Missile Defense Test Site.

⁶³ The proper application of the market replacement method requires two conditions. The first is the existence of market transactions involving the type of assets in question in which the actual value for which the asset was exchanged is known. Market transaction means a transaction between two parties that are "at arms-length," that is, having more or less equal power to determine the price and other essential conditions of the transaction. The second condition is establishing reasonable similarity between the assets involved in this market transaction and the non-market assets being evaluated. Similarity does not mean that the two assets must be identical, but that they share certain essential characteristics, although in varying degrees.

As a result of negotiations concluded in 2003 between the U.S. and the RMI, the U.S. makes annual payments for its use of the base that totaled \$17.1 million in the first year of the agreement (2004).⁶⁴ With 2,409 acres leased,⁶⁵ these payments yield a 2004 rental price per acre of \$7,098.

Table 2: Kwajalein Atoll Annual Rental Payments

Annual rental payment by U.S. to RMI for use of Kwajalein (millions of 2004 \$)	\$17.1
Total land area leased (acres)	2,409
Rental payment per acre (2004 \$)	\$7,098

¶69 While the Kwajalein rental payments comparison is useful, it is less than ideal in that the payments are not the result of an arms-length negotiation between parties with equal bargaining power. From the end of World War II until 1986, the Marshalls were a U.S. “trust territory,” and while it is now nominally an independent nation, it exists in a “Compact of Free Association” with the U.S. and remains in many ways a U.S. dependency. The Kwajalein rental payments were agreed upon as part of negotiations leading up to the 2003 renewal of the Compact of Free Association between the two countries and thus were part of broader political negotiations over the financial relationship between the two parties (which included U.S. payments for health, education, energy, and other purposes, which, along with the Kwajalein rental payments, account for a significant proportion of the RMI’s national income). Given the difference in bargaining power between the RMI and the U.S. and the functional dependency of the RMI on the U.S., the payments likely underestimate the fair market value of the base land (let alone other components of the land’s value).

¶70 Indeed, a group of Kwajalein landowners who were displaced (like the Chagossians) by the base after World War II and who have received compensation payments as a result of their displacement (unlike the Chagossians) have argued that the agreement significantly underestimates the proper value of their land. Based on a study they commissioned to estimate the fair market rental value of their land (an estimate which focuses only on the economic value of the land in question) the landowners claim that the proper land rent they are owed (which has represented only around two-thirds of the total U.S. payment for Kwajalein) was “in the range of \$14.7 million to \$28.4 million” for 2001.⁶⁶ Based on that estimate, the 2004 U.S. payment of \$17.1 million to the RMI (with 2/3 of that amount or \$11.4 million nominally allocated to land rent) underestimated the fair market value of Kwajalein by perhaps half. If aspects of the

⁶⁴ This includes a \$15 million Kwajalein Military Use Compensation Payment, a \$1.9 million payment to members of the Kwajalein Atoll Community, and a \$200,000 payment to the RMI Environmental Protection Agency to help with environmental monitoring in the atoll. See Press Release, U.S. & Republic of the Marshall Islands, Joint Communiqué on the Kwajalein Military Use and Operating Rights Talks between the U.S. and the Republic of the Marshall Islands (Jan. 16, 2003).

⁶⁵ E-mail from Bill Graham to David Vine (June 13, 2005) (on file with author). Graham cited the acres leased as defined in the U.S.-RMI Land Use Agreement.

⁶⁶ The calculation is for the year 2001. The landowners also proposed annual U.S. payments of \$6 million to provide for the independent evaluation of yearly U.S. Army Environmental Impact Assessments and, if necessary, to repair environmental damage. Irij Christopher Loeak, *A Plea of Kwajalein Landowners* (June 26, 2002), www.hawaii.edu/hivandaids/The_Plea_of_Kwajalein_Landowners.doc.

atoll’s value other than its income-generating capacity were counted, the underestimate would be even greater.

¶71 Mindful of these reservations about the Kwajalein comparison, we nevertheless used it to estimate the value of the Chagossians’ loss of their islands. In Table 3, we use the Kwajalein rental payment per acre to calculate the annual rental value of the Chagossians’ land, first in 2004 dollars and then in 2008 dollars.

Table 3: Estimate of Annual Rent Owed the Chagossians for the Use of Their Land Based on Kwajalein Comparison

Total Chagossian land area (acres)	1,014
Rental payment per acre, Kwajalein (2004)	\$7,098
Annual rental value of Chagossians’ land based on Kwajalein comparison (millions of 2004 \$)	\$7.2
Annual rental value of Chagossians’ land based on Kwajalein comparison (millions of 2008 \$)	\$8.1

Note: 2008 dollar amounts are expressed in chained 2008 dollars (an indexing method that provides a more stable measure of inflationary effects over time).

¶80 We next used this annual rental value to estimate the total unpaid rent owed to the Chagossians through 2008—counting their dispossession as having begun in 1970.⁶⁷ This estimate is summarized in Table 4. We estimate the rental arrears owed to them, including interest, at \$423.1 million or € 337.7 PPP euros (see rows 3-4 in Table 4 below). This estimate will continue to grow at an annual rate of \$8.1 million per year (plus interest on the total amount) for years after 2008. Table 4 also estimates the capitalized value (i.e., fair market price) of the Chagossians’ interest in their land at \$268.7 million or € 214.5 million PPP euros as of 2008 (see last 2 rows in Table 4).

⁶⁷ Although Chagossians were displaced from Chagos between the years 1968 and 1973, we use 1970 as the average date of expulsion.

Table 4: Estimate of Total Unpaid Rent Owed the Chagossians as of 2008 Based on Kwajalein Comparison

Annual rental value of Chagossians' land (millions of 2008 \$)	\$8.1
Years of annual rental payments owed, 1970-2008	39
Total unpaid rent owed to Chagossians for 1,014 acres of land from 1970 through 2008, including accrued interest at real annual rate of 1.5% (millions of 2008 \$) ⁶⁸	\$423.1
Total unpaid rent owed to Chagossians through 2008 in millions of 2008 PPP €	€ 337.7
Capitalized value of Chagossians' interest in their land as of 2008 based on 3% rent to value ratio (millions of 2008 \$)	\$ 268.7
Capitalized value of Chagossians' interest in their land in millions of 2008 PPP €	€ 214.5

5. The Okinawa Comparison.

¶195 Unlike the Kwajalein example, the 2006 agreement between Japan and the United States concerning land used for U.S. military bases on Okinawa was a transaction between relatively equal sovereign parties and thus better reflects the actual value of the land in question. Under this agreement, Japan agreed to pay the U.S. \$6.09 billion to help move thousands of U.S. marines currently stationed in Okinawa to Guam.⁶⁹ Under the agreement, Japan would regain control of the base lands, where the U.S. has in many ways exercised effective sovereignty since World War II (and formal sovereignty until 1972). In effect, Japan is paying the U.S. government to vacate more than 4,000 acres of Okinawa long occupied by U.S. bases to regain full sovereignty over those parts of the island. As we show in Table 5, this yields a price per acre value of \$1.5 million (2008).

Table 5: Okinawa Land Value, Price per Acre

Price Japan paid U.S. to vacate Okinawa bases (millions of 2008 \$)	\$6,090
Total land area vacated (acres)	4,171
Price Japan paid U.S. per acre of land vacated (millions of 2008 \$)	\$1.5

¶102 We believe this transaction provides a better basis for estimating the value of the land interests the Chagossians have lost. The Okinawa transaction was negotiated between parties with reasonably comparable bargaining power and it involved land being

⁶⁸ Using the 2008 rental figure for each of these 39 years assumes, in effect, that the rental value of the Chagossian archipelago would have increased at a rate equal to the rate of inflation of the U.S. dollar over the course of these 39 years (i.e., that the islands' rental value would have been constant in real terms). The 1.5 real rate of interest is approximately half the historical long-term real interest rate. See JAMES A. GIROLA, U.S. DEP'T OF THE TREASURY, THE LONG-TERM REAL INTEREST RATE FOR SOCIAL SECURITY 9 (Mar. 30, 2005). This discounting of the real interest rate seems appropriate since a payment for foregone past interest removes systematic (default) and regulatory (changes in the law) risks that are included in the real rate of interest. What remains is the pure time value of money.

⁶⁹ When and whether this will actually happen is another matter beyond the scope of this paper. It is important to note, however, that the Japanese government has already begun payments towards the \$6.09 billion total.

used for U.S. military facilities of similar size, scope, and isolation to the U.S. facility in Chagos.

¶103 Importantly, the Okinawa transaction captures all three aspects of the value of land that the Chagossians lost—i.e., not just the economic value of their individual land holdings, but also the value of their sovereignty over their homeland and the value of the social, economic, and cultural benefits they derived from being able to live there. Japan was not just purchasing a tract of land. It was buying back its full sovereignty over that land and the right of Japanese citizens to live there.

¶104 Using the \$1.5 million per acre figure as an estimate of the capitalized value of the Chagossians’ interest in their land as of 2008, we generated a set of estimates similar to those we produced for the Kwajalein comparison. The results of this exercise are reported in Tables 6 and 7. First, we estimated the value in 2008 of the Chagossians’ interest in their land at \$1.48 billion.

Table 6: Estimate of the Value of the Chagossians’ Interest in Their Land as of 2008 Based on Okinawa Comparison

Total Chagossian land area (acres)	1,014
Price Japan paid US per acre of land to be vacated on Okinawa (millions of 2008 \$)	\$1.5
Value of Chagossians’ interest in their land in 2008 based on Okinawa comparison (millions of 2008 \$)	\$1,480

Note: 2008 dollar amounts are expressed in current fiscal 2008 dollars (dollars paid during fiscal year 2008).

¶111 We then used this value to estimate the annual rental payment (expressed in both 2008 dollars and 2008 PPP euros) that the Chagossians are owed for the use of their land, and the total rental arrears they are owed (including interest) for the 39-year period from 1970 through 2008. We estimated that total amount to be \$2.33 billion 2008 dollars or €1.53 billion 2008 PPP euros (see last 2 rows in Table 7 below).

Table 7: Estimate of Total Unpaid Rent Owed the Chagossians as of 2008 Based on Okinawa Comparison

Asset value of Chagossians’ land in 2008 based on Okinawa comparison (millions of 2008 \$)	\$1,480
Annual rental value of the Chagossians’ interest in their land based on Okinawa comparison and 3% rent to value ratio (millions of 2008 \$)	\$44.4
Years of annual rental payments owed, 1970-2008	39
Total unpaid rent owed to Chagossians for 1,014 acres of land from 1970 through 2008, including accrued interest at real annual rate of 1.5% (millions of 2008 \$) ⁷⁰	\$2,330
Total unpaid rent owed to Chagossians through 2008 in millions of 2008 PPP €	€1,860

⁷⁰ See *supra* note 68.

Note: 2008 dollar amounts are expressed in current fiscal 2008 \$ (dollars paid during fiscal year 2008).

¶122 There is one aspect of the Okinawa transaction, however, that could cause it to overstate the value of the land Japan is acquiring. On one hand, Japan is acquiring title to the facilities the U.S. has constructed on its Okinawa bases since World War II. The U.S. acquired no similar facilities from the Chagossians when it occupied their homeland. On the other hand, the value of the military facilities Japan is acquiring depends on how it intends to use the land in question and on the cost of any environmental remediation required to render them suitable for that use. If Japan were to use the U.S. bases for military purposes, the facilities constructed by the U.S. could have significant value, but there is no indication that any such use is planned, and given the harmful environmental impacts associated with the construction and use of military bases, there is good reason to doubt that the land Japan is acquiring qualifies as economically “improved.” That being the case, we see no reason to believe that the Okinawa transaction significantly overstates the value of the land it is acquiring compared to what the Chagossians lost.

¶123 Accordingly, unlike the Kwajalein example, which almost certainly understates the value of the Kwajalein atoll to its indigenous population, we believe the Okinawa transaction provides a reasonably unbiased comparator for purposes of estimating the value of the Chagossians’ lost land holdings and land-based rights. We therefore believe the \$2.33 billion estimate of this element of the Chagossians’ damages based on the Okinawa comparison is more accurate than the \$423.1 million estimate based on the Kwajalein comparison.

6. Lost Personal Property

¶124 The Chagossians owned a range of items they were barred from taking with them when they were expelled from their homes. This property included their houses, furniture, animals, kitchen and other household goods, clothing, musical instruments, and foodstuffs. Although it included items of important emotional, psychological, and sociocultural value, the monetary value of this personal property was small compared to that of the Chagossians’ land holdings and land-based rights. We therefore have not adjusted our overall estimate of the Chagossians’ property (i.e., land-based) losses to account for the value of their lost personal property.

B. Environmental Damage

¶125 Environmental and other physical damage to Chagos constitutes another type of loss for which a compensation calculation must account. The U.S. occupation of Chagos appears to have resulted in considerable environmental damage to Diego Garcia, the island where the U.S. military base is located. Although the ban on non-military visitors to Diego Garcia makes it impossible to know the full extent of these damages (Vine was repeatedly denied research access by U.S. and U.K. authorities) various reports have documented environmental harms including the following:⁷¹

⁷¹ See PETER H. SAND, U.S. AND THE U.K. IN DIEGO GARCIA: THE FUTURE OF A CONTROVERSIAL BASE 51-62 (2009); DÉRASINÉ, *supra* note 6, at 183-190.

- large-scale blasting and deep-dredging of the atoll's coral resources, with irreversible consequences for the coral reef ecosystem;⁷²
- clear-cutting and destruction of thousands of trees and other local vegetation, which had served as habitat for threatened wildlife species;⁷³
- massive introduction of invasive alien plant species on the island as a result of military construction, landfills, and naval operations;⁷⁴
- pollution of the island's soil and groundwater by a series of un-remediated or incompletely remediated fuel spills from POL storage tanks;⁷⁵
- radioactive contamination due to operational and accidental leakages from nuclear-propelled vessels and submarines regularly transiting the Diego Garcia lagoon since 1979, and from major trans-shipments of nuclear materials in 2008;⁷⁶
- health and safety hazards due to remnants of ammunition storage and transfers, both on land and in the parts of the lagoon (ESQD arcs) reserved for ordnance supply vessels;⁷⁷
- environmental impacts of low-to-medium frequency underwater sound experiments and naval sonar operations, known to be

⁷² See U.S. NAVAL FACILITY ENGINEERING COMMAND/PACIFIC DIVISION, INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN, DIEGO GARCIA, BRITISH INDIAN OCEAN TERRITORY 3-4 (Sept. 2005); see also T. Tucker & B.T. Doughty, *Naval Facilities, Diego Garcia, British Indian Ocean Territory: Management and Administration*, in 84 PROCEEDINGS OF THE INSTITUTION OF CIVIL ENGINEERS (MARITIME ENGINEERING GROUP, PART 1) 191, 196, 213 (1988) (4.5 million cubic meters of "coral fill" dredged by 1983). According to the UK Government's CHAGOS CONSERVATION MANAGEMENT PLAN 30 (Charles R.C. Sheppard & Mark Spalding eds., 2003), contrary to the U.S. Navy's assumptions in 1997, there is no chance of "natural recovery" in the dredged coral reef flats.

⁷³ When more than 1,000 coconut palm trees were bulldozed in 2006-07 to make place for a new ammunition pad, the Navy's resident natural resources specialist for Diego Garcia received the Chief of Naval Operations Environmental Award for his efforts to relocate 265 protected coconut crabs. See Press Release, U.S. Secretary of Defense, FY07 Chief of Naval Operations Environmental Award Natural Resources Conservation Category Individual Excellence (Mar. 3, 2008).

⁷⁴ According to the Navy's estimates, there was a 31% increase in unintentionally introduced invasive plant species from 1988 to 1996, described in 1997 as an ecological "time bomb that should be defused." Eight years later, the presence of the same invasive species was confirmed in the next survey. See *supra* text accompanying note 72.

⁷⁵ Jet fuel spills (totalling more than 1.3 million gallons) were recorded at the base in 1984, 1991 (160,000 gallons lost), 1997, and 1998. On (only partially successful) attempts to recover some of the fuel by "bioslurper" pumps, see Jerry Hansen & Donald H. Kampbell, *Large-Scale Bioslurping Operations Used for Fuel Recovery*, in 8 EPA TECHNOLOGY NEWS AND TRENDS 2-3 (2003).

⁷⁶ In May-June 2008, 550 tons of low-grade uranium ("yellow-cake") were transported from Iraq to Diego Garcia in 37 cargo plane loads, and transferred to a Navy crane-vessel for shipment to Canada. See Brianna Keilar & Larry Shaughnessy, *500 Tons of Uranium Shipped from Iraq, Pentagon Says*, CNN (July 7, 2008), http://articles.cnn.com/2008-07-07/us/iraq.uranium_1_yellowcake-uranium-cameco?_s=PM:US.

⁷⁷ In 1997, about 10,000 landmines (in *Gator*, *Volcano* and *MOPMS* dispenser packages for aircraft delivery) were stockpiled on ordnance vessels in the Diego Garcia lagoon. INTERNATIONAL CAMPAIGN TO BAN LANDMINES, LANDMINE MONITOR REPORT: TOWARDS A MINE-FREE WORLD 328-334 (1999).

harmful and potentially lethal to marine mammals,⁷⁸ at the U.S. Navy’s secretive Diego Garcia “ocean surveillance station” and throughout the adjoining Chagos Archipelago (which is part of the International Whaling Commission’s Indian Ocean Sanctuary),⁷⁹

- contamination of soil and groundwater as the result of reported use of “Agent Orange” (dioxin-contaminated 2,4,5-T) as a defoliant to clear jungle foliage for the construction of the runway, ammunition pads, and possibly other areas.⁸⁰

¶126 Grounds exist under both U.S.⁸¹ and international law⁸² for charging polluters the reasonable cost of remediating environmental damage to the extent remediation is possible.⁸³ Where it is not possible to estimate remediation costs because the natural resources in question have been permanently damaged, well-established methodologies exist for estimating the value of lost resources. For example, the irreversible destruction of coral resources by blasting and deep-dredging in the Diego Garcia lagoon and the island’s western reef flats can be measured in terms of lost ecological services and/or benefits.⁸⁴ For example, in a document discussing the establishment of a “marine

⁷⁸ In a court-enforced settlement on December 27, 2008, the U.S. Navy agreed to disclose previously classified information on its sonar use, and to prepare environmental statements for sonar exercises and ranges around the world. *U.S. Navy, Conservationists Reach \$16 Million Settlement*, ENVIRONMENT NEWS SERVICE (Jan. 5, 2009), <http://www.ens-newswire.com/ens/jan2009/2009-01-05-091.asp>.

⁷⁹ According to the International Whaling Commission’s Scientific Committee “there is now compelling evidence implicating military sonar as a direct impact on beaked whales in particular.” INTERNATIONAL WHALING COMMISSION SCIENTIFIC COMMITTEE, REPORT OF THE SCIENTIFIC COMMITTEE, Annex K ¶ 6.4 (2004). Note that strandings of beaked whales (*Ziphius cavirostris*) have been reported by visiting vessels in the Chagos archipelago in 2002 and 2009.

⁸⁰ E-mail from Peter H. Sand to David Vine (Oct. 19, 2009) (on file with author).

⁸¹ See, e.g., Comprehensive Environmental Response, Compensation, and Liability Act of 1980 ch. 101, §16, 42 U.S.C. § 9601 (1980); Oil Pollution Act of 1990 § 1001(5), § 1002(b)(2) (1990); James Boyd, *Compensation for Oil Pollution Damages: The American Oil Pollution Act as an Example for Global Solutions*, in PREVENTION AND COMPENSATION OF MARINE POLLUTION DAMAGE: RECENT DEVELOPMENTS IN EUROPE, CHINA, AND THE US 137, 140 (Michael G. Faure & James Hu eds., 2006).

⁸² For example, the United Nations Compensation Commission (UNCC) in its adjudication of claims for environmental damages arising from the 1991 Gulf War—before even considering substantive damage claims – held Iraq liable for the prior scientific assessment of the damage caused, and therefore awarded a total of \$243 million for monitoring and assessment in 2001. See U.N. Compensation Comm’n, Report and Recommendations made by the Panel of Commissioners concerning the First Instalment of F4 Claims, U.N. Doc. S/AC.26/2001/16 (June 22, 2001); see also, David D. Caron, *Finding Out What the Oceans Claim: The 1991 Gulf War, the Marine Environment, and the United Nations Compensation Commission*, in BRINGING NEW LAW TO OCEAN WATERS tbl. 17.1, 406, tbl. 17.2 (David D. Caron & Harry N. Scheiber eds., 2004).

⁸³ According to the U.S. General Accounting Office (GAO), annual clean-up costs of the U.S. military for base remediation in the U.S. and Puerto Rico over the five-year period from 1997 to 2001 averaged \$238 million. See U.S. GEN. ACCOUNTING OFFICE, ENVIRONMENTAL CONTAMINATION: CLEANUP ACTIONS AT FORMERLY USED DEFENSE SITES, GAO-01-557 (July 2001). With regard to U.S. bases abroad, see DEP’T OF DEFENSE, ENVIRONMENTAL REMEDIATION FOR DOD ACTIVITIES OVERSEAS Instruction 4715.8 (Feb. 2, 1998).

⁸⁴ See PAVAN SUKHDEV ET AL., THE ECONOMICS OF ECOSYSTEMS AND BIODIVERSITY: CLIMATE ISSUES UPDATE 7 tbl. 1 (2009) (benefits from ecosystem services in coral reef ecosystems, including genetic diversity, at 2007 values). See also Robert Costanza et al., *The Value of Ecosystem Services: Putting the Issues in Perspective*, 25 ECOLOGICAL ECONOMICS 67-72 tbl. 1 (1998) (estimating the average ecological

protected area” in Chagos, the U.K. Foreign & Commonwealth Office (FCO) noted that “[g]lobal studies of the economic benefits of coral reefs estimate their value to be about \$100,000-\$600,000 per square km per year.”⁸⁵ Based on these figures, the permanent loss in value caused by the destruction of 30 square kilometers of Diego Garcia coral reefs by U.S. military construction teams (as confirmed in Navy documents)⁸⁶ can be estimated at between \$3 million to \$18 million per year. Since these damages will be suffered by the Chagossians in perpetuity, the appropriate way to measure the present value of this harm is by estimating the capitalized value of this lost stream of imputed income. At a 3% assumed real rate of interest, the present value of a permanent loss of \$3 million to \$18 million per year totals between \$100 million and \$600 million.

¶127 Scientific assessment is needed to estimate the cost of remedying reversible environmental harms caused by the U.S. occupation of Diego Garcia and of compensating the Chagossians for the irreparable harms the occupation has caused. Some idea of the possible order of magnitude of these costs can be garnered, however, from environmental clean-up costs at other military bases. Between fiscal years 1993 and 2004, the U.S. Congress appropriated \$460.5 million for the clean-up of the Hawai’ian island of Kaho’olawe, a former Navy bombing range that covers 28,000 acres. On the Puerto Rican island of Vieques, long used as a Navy bombing range and training facility, a 2005 Navy estimate put total clean-up costs at \$112.7 million for almost 23,000 acres of land.⁸⁷ More broadly, clean-up costs for base remediation at facilities in the U.S. and Puerto Rico over the five-year period 1997-2001 averaged \$238 million, according to the U.S. General Accounting Office (GAO).⁸⁸

¶128 Since we do not have access to the information needed to estimate the size of the environmental damages the Chagossians have sustained as a result of the U.S. occupation of Diego Garcia, we have not included that item in our estimate of the Chagossians’ total legally cognizable damages. The above figures should, however, be somewhat indicative of the size of this additional claim.

C. Lost Income

¶129 A traditional approach to the estimation of the income loss attributable to a collectively-suffered harm would be to identify a population comparable to the affected one, but for the absence of the loss-inducing harm, and then measure the difference in income of the two populations. This, in essence, is the basis of the methodology we used to estimate the value of the Chagossians’ lost land holdings and land-based rights.

service value of coral reefs at \$607,500 per square kilometre annually); LAURETTA BURKE, LIZ SELIG & MARK SPALDING, REEFS AT RISK IN SOUTHEAST ASIA, *WORLD RES. INST.*, 54 tbl. 4 (2002) (estimating the total benefits of coral reefs – from fisheries, shoreline protection, tourism, recreation and aesthetic value— at between \$23,100 and \$270,000 per square kilometre). *See also* Fredrik Moberg & Carl Folke, *Ecological Goods and Services of Coral Reef Ecosystems*, 29 *ECOLOGICAL ECONOMICS* 215-233 (1999); Luke M. Brander, Pieter van Beukering & Herman S.J. Cesar, *The Recreational Value of Coral Reefs: A Meta-Analysis*, 63 *ECOLOGICAL ECONOMICS* 209-218 (2007).

⁸⁵ FOREIGN & COMMONWEALTH OFFICE, CONSULTATION ON WHETHER TO ESTABLISH A MARINE PROTECTED AREA IN THE BRITISH INDIAN OCEAN TERRITORY 11 (2009).

⁸⁶ *See supra* note 72.

⁸⁷ David Beardon, *Vieques and Culebra Islands: An Analysis of Cleanup Status and Costs*, in CONGRESSIONAL RESEARCH SERVICE REPORT FOR CONGRESS 8-9 (2005).

⁸⁸ *See* U.S. GEN. ACCOUNTING OFFICE, *supra* note 83.

Initially, we attempted to follow the same approach in estimating the Chagossians' lost income.

¶130 We tried to identify a small, isolated population group living next to a U.S. (or other Western) military base of comparable size and character to the U.S. military base on Diego Garcia. In other words, we tried to identify a population group that was similarly situated to the Chagossians but for the fact that they were able to enjoy the economic benefits associated with living next to a western military base. We hoped that the difference in the earnings of this “control group” and the Chagossian population would provide sufficient data to estimate the income losses suffered by the Chagossians as a result of their being denied the chance to exploit a similar set of economic opportunities. After an exhaustive search, we identified the population of the Kwajalein Atoll and, to a lesser extent, of Guam as the closest comparable populations.⁸⁹

¶131 The problem with this approach is that it fails to account for the income losses suffered by the populations of Kwajalein and Guam as a result of human rights violations that they, too, have suffered.⁹⁰ Kwajalein's main island Ebeye became known as the “ghetto” of the Pacific Ocean under U.S. trusteeship, and standards of living on Guam are far below those in the continental U.S. despite the economic opportunities provided the residents of Guam by their proximity to the U.S. military base located there.⁹¹ To use the Kwajalein or Guam comparisons as a basis for estimating the income losses Chagossians suffered as a result of their expulsion would ignore a range of income losses (those suffered in fact by the Kwajalein and Guam populations) that a sovereign fulfilling its human rights obligations should be able to prevent.

¶132 All members of the United Nations have accepted a legally binding duty to “take joint and separate action in co-operation with the Organization for the achievement of . . . universal respect for, and observance of, human rights and fundamental freedoms for all without distinction as to race, sex, language, or religion.”⁹² The Universal Declaration of Human Rights makes it clear that the human rights to which this obligation applies includes economic and social entitlements.⁹³ The U.K.—Chagos's sovereign—has expressly accepted this obligation through its ratification of the International Covenant on

⁸⁹ The cases of Mayaguana, Bahamas; North West Cape, Australia; Ascension, St. Helena; the Falkland Islands; Tahiti, French Polynesia; and New Caledonia, were rejected primarily because of the limited size of military facilities relative to those at Diego Garcia. Andros Island, Bahamas; Vieques, Puerto Rico; Terceira Island, Azores; and Pine Gap, Australia, were rejected primarily because they lack the geographic and economic isolation to limit migration and economic effects external to the military facilities. Enewetak, Republic of the Marshall Islands, and Thule, Greenland, and Vieques were rejected because each experienced significant forced displacements of local populations.

⁹⁰ The U.S. is the sovereign in Guam and was the de facto sovereign in the Marshall Islands until 1994, when the Republic of the Marshall Islands established its official independence under a “Compact of Free Association” with the U.S. Given the continued reliance of the Marshall Islands on the U.S. for financial support and defense, many would argue that the U.S. remains the sovereign power, especially in the vicinity of its Kwajalein Missile Range in the Kwajalein Atoll.

⁹¹ See, e.g., Peter Marks, *Paradise Lost: The Americanization of the Marshall Islands*, NEWSDAY MAGAZINE 10 (June 12, 1986). In Guam, according to recent statistics, 23 percent of the population is living below the official U.S. poverty line, while per capita income is almost half U.S. national average. See *The World Factbook, Guam*, CENTRAL INTELLIGENCE AGENCY, <https://www.cia.gov/library/publications/the-world-factbook/geos/gq.html>.

⁹² U.N. Charter art. 55, 56.

⁹³ Universal Declaration of Human Rights, G.A. Res. 217 (III) A, U.N. Doc. A/RES/217(III) (Dec. 10, 1948).

Economic, Social and Cultural Rights.⁹⁴ More recently, as noted above, the United Nations has reaffirmed the duty of nation states to “[p]rovide effective remedies to victims” of human rights violations, and it does so in a section of the document that applies not just to gross violations of human rights but to all human rights violations.⁹⁵

¶133 Based on this authority, we believe the proper measure of the damages a population suffers when its human rights are violated should be based on a comparison of the population’s actual circumstances with those that would have existed if their sovereign had fulfilled *all* of its human rights obligations. Accordingly, we decided to base our lost-income estimate on comparisons with populations whose sovereigns’ efforts to secure economic and social human rights have been more vigorous than in the case of Kwajalein or Guam.

¶134 At the same time we recognize that whatever their origin, the economic and social conditions that exist at a particular moment in time affect the difficulty or ease with which a sovereign can secure these rights. If a population’s average level of educational attainment is relatively low, a sovereign has a higher hill to climb in securing the right to education than if the average level of educational attainment is already high. On the other hand, a difficult starting point does not justify a permanently laggard performance in securing economic and social human rights. Over time, gaps between standards of living and other socio-economic advantages should narrow. In the case of the Chagossians, a conscientious sovereign—one that not only refrained from expelling the Chagossians from their homeland, but also actively sought during the intervening period to secure all of the Chagossians’ economic and social human rights—should have been able to close most if not all of the gaps that generally distinguish the standard of living of people living in places like Chagos from those enjoyed (on average) by the residents of the rest of the sovereign’s territories.

¶135 With these considerations in mind, we decided to use three comparison populations to measure the income loss the Chagossians have suffered as a result of their expulsion—with the three populations selected representing three levels of attainment in securing the economic and social human rights of a population.

1. Comparison Populations

¶136 The first of these three comparison populations are the residents of Réunion Island, which is located near Mauritius in the Indian Ocean. Réunion lacks military facilities of the size and scope of those on Diego Garcia, but is an integral part of France (like the U.S. state of Hawai’i). Because the population of Réunion at least nominally enjoys the full benefits of French and EU citizenship, one would expect enhanced compliance by France with its duty to secure the economic and social human rights of the island’s residents, compared to the less vigorous efforts of wealthy countries to expand protection for economic and social human rights in other island territories lacking full democratic incorporation. However, the per capita income levels of the residents of Réunion are only about half those of residents of mainland France. This suggests that France still has some

⁹⁴ International Covenant on Economic, Social and Cultural Rights, *supra* note 58, art. 2. Mauritius challenges U.K. sovereignty over Chagos.

⁹⁵ Basic Principles and Guidelines, *supra* note 1, at Principle 3(d).

catching up to do before it can claim to have fully secured the economic and social human rights of the island's residents.

¶137 The second of our three comparison populations is comprised of the residents of the six most populous of the U.K.'s remaining colonies.⁹⁶ These possessions now bear the official designation of U.K. Overseas Territory ("UKOT"). Before the expulsion of the Chagossians, Chagos was renamed the British Indian Ocean Territory ("BIOT") and was given the status of a UKOT. Consequently, most Chagossians now enjoyed the status of BIOT citizenship (and since 2002, full U.K. citizenship), even though they are barred from the territory that gives them that status. It seems plausible to assume that if the Chagossians had not been removed from their homeland, their real income would have converged with that of the residents of other UKOTs. Given its sovereignty over these territories, one would expect that the U.K. would make special efforts to secure the economic and social human rights of persons residing in them, thereby closing the gap between their standard of living and that of the residents of the U.K. itself. And indeed, since around the time of the Chagossians' expulsion, the U.K. government has invested in those UKOTs whose economic performance and per capita income has lagged behind the other UKOTs and the U.K. For example, when the economy of the Falkland Islands (population today, 2,563) was in "serious decline" in the mid-1970s, the United Kingdom injected £46 million for development projects. By 2002, the islands were economically self-sufficient, with a per capita GDP of €20,128, full employment, and an economy based upon commercial fisheries and agriculture.⁹⁷ In total, the U.K. government contributes over £25 million annually to support development in the UKOTs (almost all of which goes to six territories that are not self-sufficient).⁹⁸ Still, the UKOTs have continued to suffer from some of the same economic and social human rights deficits as the populations of Kwajalein, Guam, and Réunion. Standards of living in about half of the UKOTs (St. Helena, Turks and Caicos, Anguilla, Montserrat, and the British Virgin Islands) remain considerably lower than the average enjoyed in the British Isles.⁹⁹

¶138 For our third comparison population we selected the U.K. itself. Although it is clear that not everyone living in the U.K. enjoys the full protection of their economic and social human rights, the deficits that exist in that regard are attributable mainly to the maldistribution of the nation's income rather than an insufficiency of income. That being the case, and given the focus of our analysis on the average income of the Chagossian population (rather than the distribution of income within the population), the U.K. can function in our estimation model as a stand-in for a country whose national government secures all of its residents' economic and social human rights.

⁹⁶ The other UKOTs were not selected because they lacked sufficient comparison data.

⁹⁷ FALKLAND ISLANDS GOVERNMENT, FALKLAND ISLANDS...SUSTAINING A SECURE FUTURE (2002), www.falklandislands.com; *see also*, FALKLAND ISLANDS GOVERNMENT, OUR PEOPLE (2012), <http://www.falklands.gov.fk/our-people/>.

⁹⁸ UNITED KINGDOM FOREIGN AND COMMONWEALTH OFFICE, PARTNERSHIP FOR PROSPERITY AND PROGRESS: BRITAIN AND THE OVERSEAS TERRITORIES (1999). *See also*, UKAID, THE DEPARTMENT FOR INTERNATIONAL DEVELOPMENT'S WORK WITH THE OVERSEAS TERRITORIES (2012), <http://www.dfid.gov.uk/Documents/DFID-work-overseas-territories.pdf>.

⁹⁹ *Id.*

2. Estimating the Chagossians' Lost Real Income, 1970-2008

¶139 To estimate the income losses suffered by the Chagossians, we first estimated their actual real income over the past four decades based on income surveys conducted in 1974¹⁰⁰ and 2002-2003.¹⁰¹ The results of this estimation exercise, using purchasing power parity exchange rates, are expressed in 2003 international dollars:

Table 8: Chagossians' Real Income, Estimated, 1970-2008

	Year	1970	1971	1972	1973	1974	1975	1976	1977
Per Capita Income		\$308	\$327	\$346	\$366	\$387	\$410	\$434	\$460
	Year	1978	1979	1980	1981	1982	1983	1984	1985
Per Capita Income		\$487	\$515	\$545	\$577	\$611	\$647	\$685	\$725
		1986	1987	1988	1989	1990	1991	1992	1993
Per Capita Income	Year	\$767	\$812	\$860	\$910	\$964	\$1,020	\$1,080	\$1,143
	Year	1994	1995	1996	1997	1998	1999	2000	2001
Per Capita Income		\$1,210	\$1,281	\$1,356	\$1,435	\$1,520	\$1,609	\$1,703	\$1,803
	Year	2002	2003	2004	2005	2006	2007	2008	
Per Capita Income		\$1,908	\$2,100	\$2,223	\$2,353	\$2,491	\$2,637	\$2,791	

Note: Estimated annual per capita income in 2003 international dollars based on assumption of constant growth between 1974 and 2003 surveys and same growth rate before 1974 and after 2003.

¶240 To calculate Chagossians' income losses we next compared their real per capita income to the per capita income of each of our three comparison populations on a yearly basis.¹⁰² The mean difference between these income figures for each comparison population is shown in table 9. These figures constitute three estimates (using purchasing power parity exchange rates and expressed in 2008 international dollars) of the annual per capita income loss suffered by the Chagossians due to the failure of the U.K. to make reasonable efforts to secure their economic and social as well as their civil, political, and cultural human rights over the past forty years.

¹⁰⁰ *Diego Garcia, 1975 supra* note 42.

¹⁰¹ *DÉRASINÉ, supra* note 6.

¹⁰² For more detailed tables showing these calculations and the calculations that follow, as well as for updated calculations beyond these 2008 figures, please contact the authors at pharvey@camden.rutgers.edu.

Table 9: Mean Difference in Annual Per Capita Income between Chagossians and Comparison Populations, 1970-2008

	Réunion	UKOTs	United Kingdom
Mean difference in annual per capita income (2008 Int'l\$)	\$15,757	\$24,689	\$29,775

¶249 To aggregate these losses for the entire Chagossian population, we first estimated the total Chagossian population as numbering 5,569 in 2003.¹⁰³ Based on these population figures, we estimated total group losses in both dollars and euros—with both sets of figures adjusted using purchasing power parities to more accurately reflect the real income or purchasing power the Chagossians lost as a result of their expulsion. These aggregate loss figures are reported in Table 10 and fall within a range of \$2.3 to \$4.3 billion as of 2008 (expressed in 2008 international dollars).

Table 10: Total Chagossian Loss for Each Comparison Population, 1970-2008

	Réunion	UKOTs	United Kingdom
Total Loss (billions of 2008 Int'l\$)	\$2.283	\$3.502	\$4.277
Total Loss (billions of 2008 PPP €)	€1.822	€2.795	€3.413

¶262 It is important to note that this method of aggregating the losses suffered by the Chagossian population includes income losses suffered by Chagossians who are now deceased. This introduces an upward bias in our estimate of the income losses suffered by currently-living Chagossians, but excluding the losses of deceased community members would introduce a bias in the other direction. This is because income deprivation is shared across generations within families—especially in a close-knit community such as the one the Chagossians have maintained where income is shared across generations both within and among families. Stated differently, currently-living Chagossians shared in the income losses suffered by their now-deceased parents and grandparents. Qualitative research that we have conducted shows that the entire Chagossian community has been profoundly affected by the deprivations (and premature deaths) caused by the community's expulsion.¹⁰⁴

¶263 Finally, table 11 reports our estimate of the range of individual losses suffered, on average, by Chagossians of different ages between 1970 and 2008. For Chagossians born before 1970, we estimate that these losses total between \$614,513 and \$1,161,244 as of 2008 (expressed in 2008 international dollars). For Chagossians born in 2008, we estimate that the losses suffered during their first year of life totaled between \$14,353 and \$23,808 (expressed in 2008 international dollars). Our estimate of the average income losses suffered by Chagossians born between 1970 and 2008 fall between these extremes;

¹⁰³ We based this estimate on the most accurate census available, a 2003 list of Chagossians over the age of 15 registering for litigation in the British High Court. To arrive at a total population estimate, including younger Chagossians who were not counted in the court registration figure, we estimated the total number of 2nd generation Chagossians 15 years old or younger and the total number of 3rd generation Chagossians based on demographic data collected in our 2003 survey of the Chagossian population. We then estimated population figures forward through 2008 and backward to 1970, using the average annual population growth rate actually observed since 1970 (3.15%).

¹⁰⁴ *DÉRASINÉ*, *supra* note 6.

and since 2008, of course, the income losses suffered by Chagossians of all ages have continued to accumulate.

Table 11: Estimate of Income Losses Suffered by the Chagossians between 1970 and 2008 as a Result of their Expulsion and Other Human Rights Violations

	Réunion	UKOTs	United Kingdom
Average individual loss for person born ≤ 1970 (2008 Int'l\$)	\$614,513	\$962,883	\$1,161,244
Average individual loss for person born ≤ 1970 (2008 PPP €)	€490,313	€768,400	€926,696
Average individual loss for person born in 2008 (2008 Int'l\$)	\$14,353	\$17,655	\$23,808
Average individual loss for person born in 2008 (2008 PPP €)	€11,454	€14,089	€19,000

D. U.S. Responsibility for Violations of the Chagossians' Human Rights

¶284

Although the U.K. bears primary responsibility for the harms suffered by the Chagossian people, the U.S. shares that responsibility as a result of its role in inducing the U.K. to expel the Chagossians from Chagos and its subsequent exclusionary occupation of their homeland. As the Maastricht Guidelines on Violations of Economic, Social and Cultural Rights state, under military occupation and other forms of “alien domination,” “deprivations of economic, social and cultural rights may be imputable to the conduct of the State exercising effective control over the territory in question.”¹⁰⁵ As a practical matter, it is the U.S. that has prevented the Chagossians from returning to their homeland over the past four decades and that is continuing to prevent their return.¹⁰⁶ Indeed, with only a handful of British functionaries on Diego Garcia, the U.K. has effectively ceded the islands to the U.S. A banal detail concerning everyday life on Diego Garcia makes this clear: cars drive on the right side of the road. Likewise, given how the U.S. and U.K. governments collaborated in the creation of the BIOT, the expulsion of the Chagossians, and the establishment of the U.S. presence in Chagos, it is clear that violations of the Chagossians' rights have, from the very beginning, been a joint act of both nations. It is as clear an example as one can imagine of what the Maastricht Guidelines refer to as “States *acting in concert*” to “violate economic, social and cultural rights.”¹⁰⁷

¹⁰⁵ Maastricht Guidelines on Violations of Economic, Social and Cultural Rights, U.N. Doc E/C.12/2000/13, ¶ 17 (Oct. 2, 2000) (hereinafter “Maastricht Guidelines”).

¹⁰⁶ According to our survey, 89.3% of respondents expressed a desire to return to Chagos either to live or to visit, while 6.2% said they did not want to return (the remaining 4.5% said they did not know or refused to answer). The question of Chagossians' desire to return is necessarily a complicated and abstract one given that Chagossians do not know under what conditions they might be able to return (i.e., what islands would be available for resettlement; what infrastructure, employment opportunities, transportation would exist; who would be allowed to return; and what relationship would exist with the base on Diego Garcia).

¹⁰⁷ Maastricht Guidelines, *supra* note 105, at ¶ 17.

*E. Providing Compensation for Non-Pecuniary Harms and Hard-To-Estimate Damages:
The U.S. Fair Labor Standards Act Approach*

¶285 In addition to the damages discussed above, the Chagossians have suffered a wide range of harms whose value is inherently difficult to estimate. These include both non-pecuniary and economic injuries to such things as their health, their educational opportunities, and their psychological well-being—to name just a few. Our damages model does not provide a direct estimate of these damages, but we believe the methodology used in U.S. law to compensate workers for consequential damages that flow from violations of statutory minimum-wage requirements, among other things, provides a reasonable means of filling this gap. In addition to receiving the unpaid back wages they are owed, victims of minimum wage violations in the U.S. may receive an additional award of “liquidated damages” equal to their back pay award. This method of calculating damages is mandated by the U.S. Fair Labor Standards Act in part to cover the consequential harms that low-wage workers suffer when they are paid less than the legally required minimum.

¶286 We have adopted this methodology to estimate the consequential damages suffered by the Chagossian population as a result of their property and income losses. Our summary estimate of the Chagossians’ damages reported in Table 13 uses the same (doubling) multiplication factor as the U.S. Fair Labor Standards Act. This probably understates the true extent of their damages because the unmeasured harms suffered by the Chagossian population relative to their property and income losses likely exceed those typically suffered by persons who are paid less than the minimum wage in a country like the United States. Consequently, the tendency for this measure of consequential damages to understate the actual losses suffered by the Chagossian population should be kept in mind.

1. Prior Compensation Paid

¶287 Our estimate of the Chagossians’ net damages also takes into consideration the fact that they have received some prior compensation—mostly in 1978-79 and 1982-85—as noted in Table 12.

Table 12: Prior Compensation Paid

	Payment	Payment in 2008 Int'l\$	Payment in 2008 PPP euros
Mauritian Government Informal Assistance, 1965-November 1971 (1969 Mauritius Rupees) ¹⁰⁸	214,485	285,823	243,145
Mauritian Government Compensation, 1972-1977 (1974 Mauritius Rupees) ¹⁰⁹	155,773	131,105	111,529
Mauritian Government Compensation, 1977-1978 (1978 Mauritius Rupees) ¹¹⁰	9,858,827	5,362,401	4,561,710
Mauritian Government Compensation, 1978-1979 (1979 Mauritius Rupees) ¹¹¹	16,605	7,903	6,723
British Government Compensation, 1982-1985 (1984 £) ¹¹²	4,000,000	14,495,435	12,331,037
Indian Government Donation (1984 Indian Rupees) ¹¹³	1,000,000	324,416	275,975
Mauritian Government Land Compensation, as valued by the Mauritian Government (1984 £) ¹¹⁴	1,000,000	3,623,859	3,082,759
TOTALS		24,230,941	20,612,878

Note: Chagossians in Seychelles received no compensation monies.

¶324 This compensation was paid on an individual basis, and not all Chagossians received payments (particularly those living in Seychelles). Still, for purposes of estimating the losses suffered by the Chagossian population as a whole, the present value of these prior payments should be deducted from our gross damages estimate. These prior payments totaled slightly more than \$24 million expressed in 2008 international dollars or €20.6 million PPP euros.

2. Total Damages

¶325 Table 13 provides a total damages estimate for each possible combination of damages methods described above expressed in both 2008 U.S. dollars and 2008 PPP euros. The range of damages varies from a low of \$5.4 billion to a high of \$13.2 billion expressed in 2008 international dollars or between €4.3 and €10.5 billion expressed in

¹⁰⁸ Memorandum from the Gov't of Mauritius, Ilois Community in Mauritius (June 24, 1981) (on file at Mauritius Archives).

¹⁰⁹ MAURITIUS LEGISLATIVE ASSEMBLY, SPECIAL REPORT OF THE PUBLIC ACCOUNTS COMMITTEE FOR THE 1980 SESSION, 6 (June 1981).

¹¹⁰ *Id.* at Annex IV.

¹¹¹ *Id.* The Chagossians received no interest from the £650,000 paid by the British Government to the Mauritian Government in 1972 to resettle the Chagossians, which was the source of the 1972-79 Mauritian Government payments.

¹¹² MAURITIUS LEGISLATIVE ASSEMBLY, ILOIS TRUST FUND REPORT (1985).

¹¹³ *Id.*

¹¹⁴ *Id.*

2008 PPP euros. We believe the most accurate damages estimate is the one based on the Okinawa and UK comparisons, yielding total damages close to the higher end of the range. Total damages can also be expressed as a figure for each Chagossian depending on one's date of birth.

Table 13: Total Chagossian Damages (millions of 2008 Int'l\$ or PPP €)

	Lost Land and Land-Based Rights	Lost Income	Total Lost Income and Lost Land and Land-Based Rights	Consequential Damages not Otherwise Counted	(Prior Compensation Paid)	Total Damages
1	Kwajalein Comparison	Réunion Comparison				
	\$423	\$2,283	\$2,706	\$2,706	(\$25.8)	\$5,387
	€ 338	€ 1,822	\$2,160	\$2,160	(€ 20.6)	€ 4,299
2	Kwajalein Comparison	UKOT Comparison				
	\$423	\$3,503	\$3,926	\$3,926	(\$25.8)	\$7,826
	€ 338	€ 2,795	\$3,133	\$3,133	(€ 20.6)	€ 6,245
3	Kwajalein Comparison	UK Comparison				
	\$423	\$4,277	\$4,700	\$4,700	(\$25.8)	\$9,375
	€ 338	€ 3,413	\$3,751	\$3,751	(€ 20.6)	€ 7,481
4	Okinawa Comparison	Réunion Comparison				
	\$2,330	\$2,283	\$4,614	\$4,614	(\$25.8)	\$9,202
	€ 1,860	€ 1,822	\$3,682	\$3,682	(€ 20.6)	€ 7,343
5	Okinawa Comparison	UKOT Comparison				
	\$2,330	\$3,503	\$5,833	\$5,833	(\$25.8)	\$11,641
	€ 1,860	€ 2,795	\$4,655	\$4,655	(€ 20.6)	€ 9,289
6	Okinawa Comparison	UK Comparison				
	\$2,330	\$4,277	\$6,608	\$6,608	(\$25.8)	\$13,189
	€ 1,860	€ 3,413	\$5,273	\$5,273	(€ 20.6)	€ 10,525

IV. CONCLUSION

¶447 This article has described our revised Human Rights Standards Damages Model and provided a range of estimates of the legally compensable damages the Chagossian people reasonably can claim as compensation for their expulsion from their homeland between 1968 and 1973. In producing these estimates, we have been guided by the principles expressed in the 2005 United Nations resolution entitled “Basic Principles and Guidelines on the Right to a Remedy and Reparation for Victims of Gross Violations of

Human Rights Law and Serious Violations of International Humanitarian Law.” Using multiple sources of comparative data and a method derived from U.S. law for estimating otherwise uncounted consequential damages, we produced a range estimates of the Chagossians’ total damages through 2008. Expressed in 2008 international dollars, the low end of this range was \$5.4 billion (4.3 billion 2008 PPP euros) and the high end was \$13.2 billion (10.5 billion 2008 PPP euros). For reasons explained in the article, we believe the Chagossians’ actual damages probably fall toward the high end of this range. Also, our estimate does not include the cost of remediating or providing compensation for environmental damages caused by the U.S. occupation of Diego Garcia.

¶448 Although these monetary values are specific to the case of Chagossian expulsion, the underling conceptual model can be generalized to other cases of a comparable nature. The key elements of this conceptual model include: (i) identifying the injured population and the offending sovereign(s); (ii) identifying four types of damages resulting from the action of the offending party (loss of land, loss of land-based rights, loss of income, and consequential losses/damages); and (iii) establishing functional equivalences between the case at hand and other cases in which monetary value of comparable damages is known. The actual value of damages is calculated by straightforward accounting procedures involving pro-rating to scale, conversion to international currency units, and calculation of compound interest.

¶449 While the conceptual model introduced in this paper unavoidably involves a certain degree of judgment about key methodological procedures (e.g., what is the most appropriate reference group for value calculation), it also makes that judgment transparent and subject to critical evaluation. Therefore, the model provides a useful framework not only for estimating the monetary value of damages owed victims of gross human rights violations, but also for negotiating that value with other interested parties.