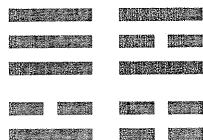

THE GEORGETOWN
INTERNATIONAL ENVIRONMENTAL
LAW REVIEW



**African Wetlands of International Importance:
Assessment of Benefits Associated with
Designations under the Ramsar Convention**

ROYAL C. GARDNER*, KIM DIANA CONNOLLY**, & ABOU BAMBA***

VOLUME XXI
ISSUE 2
WINTER 2009



African Wetlands of International Importance: Assessment of Benefits Associated with Designations under the Ramsar Convention

ROYAL C. GARDNER*, KIM DIANA CONNOLLY**, & ABOU BAMBA***

CONTENTS

I.	Introduction	258
II.	A Brief Introduction to the Ramsar Convention	260
III.	Ecosystem Services of and Challenges Facing Surveyed Ramsar Sites	266
	A. Description of Surveyed African Ramsar Sites	269
	Algeria	269
	Benin	270
	Botswana.	271
	Burkina Faso	271
	Congo	272
	Côte d'Ivoire	273
	Gambia	273
	Ghana	274
	Guinea	275
	Kenya	275
	Mali	276
	Mauritania	276
	Namibia	277

* Royal C. Gardner is Professor of Law and Director of the Institute for Biodiversity Law and Policy at Stetson University College of Law. He is a member (and former chair) of the U.S. National Ramsar Committee and served as the North American representative to the Ramsar Scientific and Technical Review Panel from 2006-2008. He can be reached at gardner@law.stetson.edu.

** Kim Diana Connolly is Associate Professor of Law at the University of South Carolina School of Law and teaches wetland law and policy in Vermont Law School's summer program. She is a member and vice chair of the U.S. National Ramsar Committee and serves as its liaison to Wetlands International. Professor Connolly can be reached at connolly@sc.edu.

*** Abou Bamba is Senior Advisor for Africa at the Ramsar Secretariat in Switzerland. He can be reached at bamba@ramsar.org.

The authors thank the Ramsar site managers in Africa who completed surveys in a timely manner and provided helpful comments on an earlier draft. We are exceedingly grateful to Evelyn Parh Moloko, former Ramsar Assistant Advisor for Africa, for her logistical and translation services, and Stephanie A. Broad, a second-year law student at Stetson University, for her outstanding research assistance. We also thank Dave Prichard for his insightful comments on an earlier draft and Lauren Jannell for her translation work. Finally, we extend continued appreciation to Robert Oldendick, Director of Survey Research, Institute for Public Service and Policy Research, College of Arts and Sciences, University of South Carolina, for his help in designing the original survey instrument and Tobias Brasier, University of South Carolina webmaster, who constructed the online survey form. © 2009, Royal C. Gardner, Kim Diana Connolly, and Abou Bamba.

	Niger	278
	Senegal	278
	Seychelles	278
	Tunisia	279
	Zambia	279
	B. Challenges	280
IV.	Public Identification and Effect of Ramsar Designation	283
	A. Public Identification with Ramsar	283
	B. Benefits of Ramsar Designation	285
	1. Increased support for protection and management of the sites.	285
	2. Increased scientific studies	287
	3. Increased funding opportunities	288
	4. Increased ecotourism	289
	5. Poverty alleviation.	289
	6. Problems associated with Ramsar designation.	290
V.	Recommendations to Strengthen the Ramsar Convention in Africa.	290
VI.	Conclusion	294

I. INTRODUCTION

Wetlands provide a host of ecosystem services for local communities¹ and are often considered “jewels” by the people who rely on and treasure them.² Sometimes the value of these ecosystems transcends national boundaries, and many of these “jewels” have been recognized as Wetlands of International Importance (or Ramsar sites) under the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (often referred to as the Convention on Wetlands or the Ramsar Convention).³ As of December 2008, 158 countries were Parties to the Ramsar Convention,⁴ including forty-seven African nations that collectively had designated more than 280 wetlands as Ramsar sites for a total area of more than seventy million hectares.⁵

Employing a cooperative, nonregulatory means of wetland protection, the

1. MILLENNIUM ECOSYSTEM ASSESSMENT, ECOSYSTEMS AND HUMAN WELL-BEING: WETLANDS AND WATER SYNTHESIS 30-32 (World Resources Inst. 2005), available at <http://www.millenniumassessment.org/documents/document.358.aspx.pdf>.

2. See, e.g., KAREN ROSS, OKAVANGO: JEWEL OF THE KALAHARI (2d rev. ed., 2003); SouthAfrica.info, *iSimangaliso Wetland Park*, <http://www.southafrica.info/about/animals/stlucia.htm> (last visited Aug. 20, 2008) (“The iSimangaliso Wetland Park is one of the jewels of South Africa’s coastline, with a unique mosaic of ecosystems—swamps, lakes, beaches, coral reefs, wetlands, woodlands, coastal forests and grasslands—supporting an astounding diversity of animal, bird and marine life.”); RUSSELL A. MITTERMEIER ET AL., PANTANAL: SOUTH AMERICA’S WETLAND JEWEL (2005).

3. Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Feb. 2, 1971, T.I.A.S. No. 1084, 996 U.N.T.S. 245 (amended 1982 & 1987) [hereinafter Ramsar Convention].

4. Ramsar Secretariat, Contracting Parties to the Ramsar Convention on Wetlands, http://www.ramsar.org/key_cps.htm (last visited Jan. 26, 2009).

5. These data are compiled from Ramsar Secretariat, *The List of Wetlands of International Importance* (Dec. 19, 2008), available at <http://www.ramsar.org/sitelist.pdf> [hereinafter *Ramsar List*].

Ramsar Convention provides support for conservation and wise use of wetlands throughout the world.⁶ For example, although joining the Ramsar Convention obliges each Party to designate at least one wetland site for inclusion in the List of Wetlands of International Importance,⁷ the majority of Ramsar designations are entirely voluntary.⁸ Thus, a Party may designate one Ramsar site⁹ or many.¹⁰

But what is the value of such designation? Until recently, there has been little systematic study of the effects of Ramsar designation. In 2007, two of us wrote an article for *The Environmental Law Reporter* exploring whether, in light of the mosaic of wetland laws in the United States,¹¹ Ramsar designation provides any additional benefits.¹² After surveying the then-twenty-two U.S. Ramsar sites, we concluded the international designation adds some value to all surveyed sites.¹³ Following the report of the U.S. survey, the Canadian government conducted a survey of its own sites and compared the results to the U.S. survey.¹⁴ Thereafter, the U.S. National Ramsar Committee¹⁵ and the Ramsar Secretariat agreed to

6. *See, e.g.*, United Nations Environment Programme, Note on the Role of the Ramsar Convention and Its Role in Global Water Supply, <http://hqweb.unep.org/pdf/emgramsar.pdf> (last visited Aug. 8, 2008) (“The Convention has increasingly recognized that wetlands not only play a vital role in the hydrological cycle, but that to secure their conservation and wise use it is essential that they are managed in the wider context of basin-scale and water resource management.”).

7. Ramsar Convention, *supra* note 3, art. 2.4.

8. *See id.* art. 2.

9. Countries that have designated only one Ramsar site are Antigua and Barbuda, Bahamas, Barbados, Botswana, Burundi, Central African Republic, Cyprus, Djibouti, Dominican Republic, Fiji, Guinea-Bissau, Iraq, Jordan, Kazakhstan, Lesotho, Liechtenstein, Malawi, Mali, Marshall Islands, Monaco, Montenegro, Mozambique, Myanmar, Palau, Rwanda, Samoa, Sao Tome and Principe, Seychelles, Sierra Leone, Suriname, Syrian Arab Republic, and Yemen. *See Ramsar List, supra* note 5.

10. For example, the United Kingdom has 166 designated sites, Mexico has 112 designated sites, and Australia has 65. *See id.*

11. *See generally* WETLANDS LAW AND POLICY: UNDERSTANDING SECTION 404 (Kim Diana Connolly, Stephen M. Johnson & Douglas R. Williams eds., 2005).

12. Royal C. Gardner & Kim Diana Connolly, *The Ramsar Convention on Wetlands: Assessment of International Designations Within the United States*, 37 ENVTL. L. REP. 10089 (Feb. 2007), available at http://www.ramsar.org/wurc/wurc_gardner_elr2007.pdf.

13. *Id.* at 10102. Since the survey, the United States has added two additional Ramsar sites: Francis Beidler Forest, South Carolina (May 5, 2008) and Wilma H. Schiermeier Olentangy River Wetland Research Park, Ohio (Apr. 18, 2008). *Ramsar List, supra* note 5, at 40. The response to the U.S. survey within the larger Ramsar community was very positive. *See* Sandra Hails, Benefits of Ramsar Designation (Sept. 3, 2007), http://www.ramsar.org/cepa/outreach_cepanews_e191.htm (last visited Nov. 5, 2008).

14. PAULINE LYNCH-STEWART, WETLANDS OF INTERNATIONAL IMPORTANCE (RAMSAR SITES) IN CANADA: SURVEY OF RAMSAR SITE MANAGERS 2007 (2008), available at http://www.ramsar.org/wurc/wurc_canada_survey_2007.pdf.

15. The U.S. National Ramsar Committee consists of representatives from nongovernmental organizations (NGOs) and government agencies that support the goals and objectives of the Ramsar Convention. U.S. National Ramsar Committee, <http://www.ramsarcommittee.us> (last visited Nov. 5, 2008). As we noted previously, Recommendation 5.7 from the 5th Conference of Contracting Parties (COP):

encourages the Parties to create national Ramsar Committees. The composition and role of such domestic committees vary from country to country. The committees may consist entirely of government representatives, entirely of NGO representatives, or some combination thereof. The Ramsar Secretariat suggests that the committees “should include as many sectors of government and

work together on a survey of selected African sites.

This Article discusses the results of surveys from twenty-six African Ramsar sites. Part II of the Article provides a brief overview of the Ramsar Convention's duties and implementation. Part III describes the sites that were surveyed, focusing on the ecosystem services they provide and the challenges they face. Part IV then reports on the survey results with respect to public identification with the Ramsar Convention and the benefits that flow from Ramsar designation. Finally, Part V makes recommendations on how to strengthen the Ramsar Convention within Africa.

We found that Ramsar designation in Africa is more than a mere honor. Ramsar status confers specific benefits on the surveyed African sites and the people who depend on them.

II. A BRIEF INTRODUCTION TO THE RAMSAR CONVENTION¹⁶

The Ramsar Convention was concluded in Ramsar, Iran in February 1971.¹⁷ The Convention was the culmination of more than eight years of efforts by nongovernmental organizations and concerned countries.¹⁸ The negotiations included representatives from western Europe and the former Soviet Union, a notable development during the Cold War.¹⁹ Indeed, the Soviet invasion of Czechoslovakia in 1968 almost derailed the process.²⁰ With seven ratifications (South Africa, under the apartheid regime, was the sole African country), the Ramsar Convention entered into force in 1975.²¹ It was a dramatic shift from historic perspectives on wetlands as “disastrous realms, sources of disease, [and]

representatives of stakeholders as possible.” The committees may be expected to provide advice on wetland policies, manage Ramsar sites, support Ramsar initiatives within the country, and review the national reports that each Party must submit prior to a COP. The national committees can be a vehicle to foster stakeholder involvement at the local level, helping establish a link between wetland managers on the ground and the larger Ramsar community.

Gardner & Connolly, *supra* note 12, at 10092 (footnotes omitted).

16. A thorough and excellent overview of the Convention, including its history and modern implementation, can be found in the 2006 edition of the Ramsar Manual. Ramsar Secretariat, *The Ramsar Convention Manual: A Guide to the Convention on Wetlands*, at 24-48 (4th ed. 2006), available at http://www.ramsar.org/lib/lib_manual2006e.pdf [hereinafter *Ramsar Manual*]. Portions of this part have been adapted from Gardner & Connolly, *supra* note 12.

17. Accordingly, the Convention's short form is derived from the name of the city. Ramsar is not an acronym.

18. G.V.T. MATTHEWS, *THE RAMSAR CONVENTION ON WETLANDS: ITS HISTORY AND DEVELOPMENT* 3 (1993) (recounting that “[i]t took just over eight years of conferences, technical meetings and behind the scenes discussions to develop a convention text”).

19. *Id.* at 14 (discussing the Second European Meeting on Wildfowl Conservation).

20. *Id.* at 3 (discussing the Third International Regional Meeting on the Conservation of Wildfowl Resources in Leningrad one month after the invasion).

21. By its terms, the Ramsar Convention would enter into force four months after seven Parties had ratified it. Ramsar Convention, *supra* note 3, art. 10. The other original Parties were Australia, Finland, Greece, Iran, Norway, and Sweden. See Ramsar Secretariat, *Contracting Parties in Order of Their Accession*, http://www.ramsar.org/key_cps_order.htm (last visited Aug. 8, 2008).

obstacles to any form of positive development.”²²

As one of the oldest multilateral environmental agreements²³ (and the first to focus on a specific ecosystem),²⁴ the Ramsar Convention is a relatively short framework convention. Not surprisingly, although the Ramsar Convention opens with the sweeping language of its noble purposes,²⁵ the duties imposed on Ramsar Parties are general and permit a large degree of flexibility in their implementation. The “three pillars of implementation,” or overarching obligations, are: (1) to designate sites as Wetlands of International Importance; (2) to apply a wise-use concept to all wetlands within a Party’s territory; and (3) to engage in international cooperation.²⁶

To accomplish the first obligation, Article 2 of the Ramsar Convention calls on each Party to “designate suitable wetlands within its territory for inclusion in a List of Wetlands of International Importance.”²⁷ The Ramsar Convention states that a wetland may be listed based on its “international significance in terms of ecology, botany, zoology, limnology or hydrology.”²⁸ As currently interpreted, a wetland may meet this significance threshold if it satisfies at least one of nine criteria; for example, a site could qualify if it contains a representative, rare or unique wetland type, or if its biological diversity meets certain requirements.²⁹ While the focus of the Convention initially was on wetlands as waterfowl habitat, current listing criteria include provisions related to fish and other nonavian, wetland-dependent species.³⁰

To list a site, a Party must submit to the Ramsar Secretariat a completed

22. Luc Hoffman, *Foreword to MATTHEWS*, *supra* note 18, at v.

23. *Ramsar Manual*, *supra* note 16, at 6 (describing the Ramsar Convention as “the first of the modern global intergovernmental treaties on the conservation and sustainable use of natural resources”).

24. DAVID HUNTER ET AL., *INTERNATIONAL ENVIRONMENTAL LAW AND POLICY* 1170 (3d ed. 2007).

25. The Preamble to the Ramsar Convention reads:

RECOGNIZING the interdependence of Man and his environment;
 CONSIDERING the fundamental ecological functions of wetlands as regulators of water regimes and as habitats supporting a characteristic flora and fauna, especially waterfowl;
 BEING CONVINCED that wetlands constitute a resource of great economic, cultural, scientific, and recreational value, the loss of which would be irreparable;
 DESIRING to stem the progressive encroachment on and loss of wetlands now and in the future;
 RECOGNIZING that waterfowl in their seasonal migrations may transcend frontiers and so should be regarded as an international resource;
 BEING CONFIDENT that the conservation of wetlands and their flora and fauna can be ensured by combining far-sighted national policies with co-ordinated international action

Ramsar Convention, *supra* note 3, pmbl.

26. *Ramsar Manual*, *supra* note 16, at 19. The Convention also has two other pillars that deal with implementation capacity and membership. *Id.*

27. *Ramsar Convention*, *supra* note 3, art. 2.1.

28. *Id.* art. 2.2.

29. Ramsar Secretariat, *Strategic Framework for the List of Wetlands of International Importance*, ¶¶ 55-107 (3rd ed. 2006), available at http://www.ramsar.org/key_guide_list2006_e.pdf.

30. *See id.*

Ramsar Information Sheet (RIS)³¹ describing the proposed Ramsar site in detail.³² After reviewing the submission, the Ramsar Secretariat will include an appropriate site on the List of Wetlands of International Importance.³³ A Party is then under the obligation “to promote the conservation of the site.”³⁴ Note that the duty is conservation, rather than preservation. The Ramsar Convention does not require that Ramsar sites be placed off-limits to human activity. Indeed, the treaty explicitly recognizes the interdependence of people and wetlands and the ecosystem services that wetlands provide.³⁵ Moreover, the Ramsar Convention makes clear that listing a site “does not prejudice [a Party’s] exclusive sovereign rights.”³⁶

Once a site is listed as a Wetland of International Importance, several other duties are created. If the ecological character of a Ramsar site “has changed, is changing or is likely to change as the result of technological developments, pollution or other human interference,” a Party must inform the Ramsar Secretariat “without delay.”³⁷ Furthermore, if a Party removes a site from the Ramsar List or reduces the site’s boundaries, the Ramsar Convention states that the Party should compensate for that action, in particular by creating other “nature reserves.”³⁸ A Party must also take steps to ensure that the RIS for each site in its territory is updated at least every six years.³⁹

As of December 2008, the Ramsar Parties had designated 1828 wetland sites, from the Queen Maud Gulf in Ontario, Canada (6.278 million hectares)⁴⁰ to

31. To view the current Ramsar Information Sheet, see Ramsar Secretariat, *The Ramsar Information Sheet on Ramsar Wetlands (RIS)*, available at http://www.ramsar.org/ris/key_ris_e.pdf.

32. The RIS should cover the following information: “factual data on surface area, altitude, wetland types, location, legal jurisdiction, etc.; justifications for the Criteria cited for determining international importance; and an array of additional data on, *inter alia*, hydrological values, flora and fauna, land uses, socio-cultural factors, conservation measures, and potential threats.” *Ramsar Manual*, *supra* note 16, at 61.

33. *Id.* at 62.

34. Ramsar Convention, *supra* note 3, art. 3.1.

35. See *id.* pmb. (recognizing wetlands as “a resource of great economic, cultural, scientific, and recreational value”); see also Ezequiel Lugo, *Ecosystem Services, the Millennium Ecosystem Assessment, and the Conceptual Difference Between Benefits Provided by Ecosystems and Benefits Provided by People*, 23 FLA. ST. U. J. LAND USE & ENVTL. L. 243 (2008).

36. Ramsar Convention, *supra* note 3, art. 2.3.

37. *Id.* art. 3.2. A selection of sites where the ecological character has changed, is changing, or is likely to change is listed in the Montreux Record. *Ramsar Manual*, *supra* note 16, at 65. The Montreux Record is used “to identify priority sites for positive national and international conservation attention.” *Id.*

38. Ramsar Convention, *supra* note 3, art. 4.2. A Party may remove a Ramsar site from the list or modify the site’s boundaries in “its urgent national interest.” In addition to creating other nature reserves, a Party may be able to satisfy the compensation requirement through restoration activities. See Royal C. Gardner, *Rehabilitating Nature: A Comparative Review of Legal Mechanisms That Encourage Wetland Restoration Efforts*, 52 CATH. U. L. REV. 573, 579 (2003). No Party has ever formally invoked the “urgent national interest” test.

39. See Convention on Wetlands, 6th Meeting of the Conference of the Contracting Parties, Brisbane, Austl., Mar. 19-27, 1996, *Resolution VI.13, Submission of Information on Sites Designated for the Ramsar List of Wetlands of International Importance* (Dec. 6, 1996), available at http://www.ramsar.org/res/key_res_vi.13.htm.

40. The Okavango Delta System in Botswana was previously considered the largest Ramsar site with 6.864 million hectares until it was measured more accurately in 2006 and updated to 5.537 million hectares. Wetlands

Guinea's Ile Alcatraz (one hectare)⁴¹ totaling more than 168 million hectares.⁴² Yet a majority of Ramsar sites are located in twenty-four countries.⁴³ The 2003-2008 Strategic Plan concluded that "[m]uch greater effort is required to promote the listing of sites by many countries,"⁴⁴ and the most recent Strategic Plan established a goal of 2500 Ramsar sites by 2015.⁴⁵

Beyond an obligation to designate at least one site as a Wetland of International Importance, the second pillar obligates each Party to "formulate and implement . . . planning so as to promote . . . as far as possible the wise use of wetlands in their territory."⁴⁶ The wise-use concept has been viewed as a forerunner of, and compatible with, the notion of sustainable use or development.⁴⁷ A Party can satisfy the obligation of wise use by adopting national wetland legislation or policies, by implementing programs on wetland inventories, monitoring, research, and education, and by developing plans to "take action" at individual wetland sites.⁴⁸ The wise-use concept applies to all wetlands in a Party's territory, not just Ramsar sites.⁴⁹

International, *Botswana, Okavango Delta System, Summary Description*, in RAMSAR SITES INFORMATION SERVICE, RAMSAR SITES DATABASE, available at <http://ramsar.wetlands.org> [hereinafter RIS DATABASE]. Presently, the Democratic Republic of Congo is adding what will soon be the world's largest Ramsar site (Ngiri-Tumba-Maindombe, at 6,569,600 hectares) again giving the "largest site" title to an African party. The Ramsar Bulletin Board, *Coming Soon—The World's Largest Ramsar Site*, http://www.ramsar.org/index_bulletin.htm (July 24, 2008) [hereinafter *Largest Site*].

41. Two other sites, Hosnie's Spring, Christmas Island, Australia, and Somerset Long Bay Pond, Bermuda (U. K.), are also one hectare. See *Ramsar List*, *supra* note 5.

42. See *id.*

43. *Id.* (as of December 2008, more than 60% were in only two dozen countries). Previously, the 2003-2008 Strategic Plan noted that "over 500 (40% of the total) of [Ramsar] sites are in only 24 Contracting Parties." Convention on Wetlands, 8th Meeting of the Conference of the Contracting Parties to the Convention on Wetlands, Valencia, Spain, Nov. 18-26, 2002, *The Ramsar Strategic Plan 2003-2008*, http://www.ramsar.org/key_strat_plan_2003_e.htm [hereinafter *Strategic Plan*]. Algeria, with 42 sites, has the most Ramsar sites in the African region. *Ramsar List*, *supra* note 5.

44. *Strategic Plan*, *supra* note 43, ¶ 32.

45. Convention on Wetlands, 10th Meeting of the Conference of the Contracting Parties to the Convention on Wetlands, Changwon, S. Korea, Oct. 28-Nov. 4, 2008, *Resolution X.1: The Ramsar Strategic Plan 2009-2015*, http://www.ramsar.org/res/key_res_x_01_e.pdf.

46. Ramsar Convention, *supra* note 3, art. 3.1.

47. See *Ramsar Manual*, *supra* note 16, at 48 (stating that through the wise use concept, Ramsar "continues to emphasize that human use on a sustainable basis is entirely compatible with Ramsar principles and wetland conservation in general"); see also Convention on Wetlands, 9th Meeting of the Conference of the Parties to the Convention on Wetlands, Kampala, Uganda, Nov. 8-15, 2005, *Resolution IX.1 Annex A: A Conceptual Framework for the Wise Use of Wetlands and the Maintenance of Their Ecological Character* (Dec. 12, 2005) available at http://www.ramsar.org/res/key_res_ix_01_annexa_e.htm (comparing Ramsar and Millennium Ecosystem Assessment terminology).

48. See *Ramsar Manual*, *supra* note 16, at 49; Ramsar Secretariat, *Wise Use of Wetlands: A Conceptual Framework for the Wise Use of Wetlands* (3rd ed. 2007), available at http://www.ramsar.org/lib/lib_handbooks2006_e01.pdf.

49. Interestingly, the Ramsar Convention contains a broad definition of wetlands: "[A]reas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres." Ramsar Convention, *supra* note 3, art. 1.1.

The third pillar of the Ramsar Convention is international cooperation. Article 5 requires Parties to consult with each other over transboundary wetlands or shared water basins, codifying a principle that is now typically viewed as part of customary international law.⁵⁰ International cooperation in the Ramsar context also contemplates the sharing of experiences and data, providing financial assistance (by some countries) to aid with wetland conservation efforts, and promoting the sustainable harvest of wetland-related products in international trade.⁵¹

Another component of Ramsar's obligation of international cooperation is that Parties should participate in Ramsar organizations. The Ramsar Parties meet every three years at a Conference of the Contracting Parties (COP) to exchange information, assess the Convention's implementation, and review the status of wetlands worldwide.⁵² At each COP, the Parties will consider recommendations and resolutions that provide guidance to the Parties on a variety of wetland-related issues. For example, at COP9 in 2005 in Kampala, Uganda (the first time the COP was held in Africa), the Parties discussed topics such as avian influenza and waterfowl habitat,⁵³ the cultural importance of wetlands,⁵⁴ and guidance on the wise-use concept.⁵⁵ At COP10 in 2008 in Changwon, Republic of Korea, resolutions focused on issues ranging from wetland impacts associated with biofuels⁵⁶ and mining⁵⁷ to shorebird conservation⁵⁸ and river basin management.⁵⁹

50. See HUNTER ET AL., *supra* note 24, at 849-74.

51. See *Ramsar Manual*, *supra* note 16, at 68. Ramsar Secretariat, *International Cooperation: Guidelines for International Cooperation Under the Ramsar Convention on Wetlands* (3rd ed. 2007), available at: http://www.ramsar.org/lib/lib_handbooks2006_e17.pdf.

52. *Ramsar Manual*, *supra* note 16.

53. Convention on Wetlands, 9th Conference of the Parties to the Convention on Wetlands, Kampala, Uganda, Nov. 8-15, 2005, *Resolution IX.23 Highly Pathogenic Avian Influenza and Its Consequences for Wetland and Waterbird Conservation and Wise Use* (Nov. 22, 2005), available at http://www.ramsar.org/res/key_res_ix_23_e.htm.

54. Convention on Wetlands, 9th Conference of the Parties to the Convention on Wetlands, Kampala, Uganda, Nov. 8-15, 2005, *Resolution IX.21 Taking into Account the Cultural Values of Wetlands* (Dec. 7, 2005), available at http://www.ramsar.org/res/key_res_ix_21_e.htm.

55. Convention on Wetlands, 9th Conference of the Parties to the Convention on Wetlands, Kampala, Uganda, Nov. 8-15, 2005, *Resolution IX.1 Additional Scientific and Technical Guidance for Implementing the Ramsar Wise Use Concept* (Dec. 13, 2005), available at http://www.ramsar.org/res/key_res_ix_01_e.htm.

56. Convention on Wetlands, 10th Meeting of the Conference of the Parties to the Convention on Wetlands, Changwon, S. Korea, Oct. 28-Nov. 4, 2008, *Resolution X.25: Wetlands and "Biofuels"* (Jan. 13, 2009), available at http://www.ramsar.org/res/key_res_x_25_e.doc.

57. Convention on Wetlands, 10th Meeting of the Conference of the Parties to the Convention on Wetlands, Changwon, S. Korea, Oct. 28-Nov. 4, 2008, *Resolution X.26: Wetlands and Extractive Industries* (Jan. 13, 2009), available at http://www.ramsar.org/res/key_res_x_26_e.doc.

58. Convention on Wetlands, 10th Meeting of the Conference of the Parties to the Convention on Wetlands, Changwon, S. Korea, Oct. 28-Nov. 4, 2008, *Resolution X.22: Promoting International Cooperation for the Conservation of Waterbird Flyways* (Jan. 13, 2009), available at http://www.ramsar.org/res/key_res_x_22_e.doc.

59. Convention on Wetlands, 10th Meeting of the Conference of the Parties to the Convention on Wetlands, Changwon, S. Korea, Oct. 28-Nov. 4, 2008, *Resolution X.19 Wetlands and River Basin Management:*

By tradition, Ramsar COPs operate through consensus.⁶⁰ Matters may be put to a vote in theory, but no Party has ever formally blocked consensus such that a vote on the merits of a resolution was triggered. (The closest that a COP came to such a vote involved the question as to which regional meeting Israel should participate in.)⁶¹ Ramsar COP resolutions generally are viewed as aspirational and do not, by themselves, create binding international law.⁶² Nevertheless, the Parties take them very seriously.⁶³ Occasionally, a Party that is not wholly in agreement with a resolution will insert a reservation or statement for the record, but as indicated above, no Party has formally objected and blocked consensus.⁶⁴

The Ramsar Secretariat, with a small staff located in Gland, Switzerland,⁶⁵ oversees the day-to-day administration of the Convention. The Secretariat maintains a comprehensive and definitive website that keeps Parties (and other interested organizations and persons) informed about wetland issues throughout the world.⁶⁶ Although the Ramsar Secretariat works with the agencies of the United Nations and the depository of the Convention is UNESCO, it is independent and not part of the United Nations.⁶⁷ It also has no regulatory authority. The Ramsar Secretariat's power lies in its ability to inform and persuade.⁶⁸

Consolidated Scientific and Technical Guidance (Jan. 13, 2009), available at http://www.ramsar.org/res/key_res_x_19_e.doc.

60. See *Ramsar Manual*, *supra* note 16, at 33.

61. Several Middle Eastern countries objected to Israel's membership in the Asian region. After a procedural vote (which was defeated), Israel remained part of the Asian region; however, Israel has decided to participate in the European region. See Royal C. Gardner, *Perspectives on Wetlands and Biodiversity: International Law, Iraqi Marshlands, and Incentives for Restoration*, 2003 COLO. J. INT'L ENVTL. L. & POL'Y (YEARBOOK) 1, 3 n.12.

62. See *id.* at 2-3. *Cf. Natural Resources Defense Council v. EPA*, 464 F.3d 1 (D.C. Cir. 2006) (holding that decisions by the Parties to the Montreal Protocol on Substances That Deplete the Ozone Layer are not "law" under the Clean Air Act and are not enforceable in U.S. federal court). *But see* Posting of Eric C. Newton, A Ramsar Site Wins its Battle for Conservation: Annulment of Decisions for Building near Ramsar Site on Bonaire Was Justified, THE RAMSAR FORUM (Nov. 12, 2007), http://www.ramsar.org/wn/w.n.bonaire_2007.htm (last visited Jan. 26, 2009) (reporting on the Netherlands' decision to annul permission to construct a resort adjacent to Het Lac because of international obligations flowing from Ramsar Parties' resolutions, decisions, and guidelines).

63. For example, some countries consider Ramsar COP resolutions in wetland permitting cases. See Newton, *supra* note 62. Moreover, resolutions adopted by consensus may be viewed as creating international obligations or as evidence of state practice, which is relevant to the development of customary international law. See Gardner, *supra* note 61, at 7-9, for a discussion of the legal implications of consensus on nonbinding resolutions.

64. See, e.g., Ramsar Secretariat, *Conference Report of Ramsar COP9, Annex IV*, ¶ 203 (2005), available at http://www.ramsar.org/cop9/cop9_conf_rpt_e.htm (statement of Turkey's reservations regarding three resolutions); Ramsar Secretariat, *Conference Report of Ramsar COP8*, ¶ 89 (2002), available at http://www.ramsar.org/cop8/cop8_conf_rpt_e.htm (U.S. statement for the record expressing concern about climate change resolution).

65. See Ramsar Secretariat, The Staff of the Ramsar Secretariat, http://www.ramsar.org/about/about_bureau.htm (last visited Nov. 8, 2008).

66. The Ramsar Convention on Wetlands, <http://www.ramsar.org> (last visited Nov. 8, 2008).

67. See *Ramsar Manual*, *supra* note 16, at 18.

68. See, e.g., Newton, *supra* note 62 (reporting that Netherlands followed the recommendations of Ramsar Secretary General Peter Bridgewater in annulling permission to construct a resort without an appropriate environmental impact assessment). The Ramsar Secretariat offers technical advice for threatened Ramsar sites

III. ECOSYSTEM SERVICES OF AND CHALLENGES FACING SURVEYED RAMSAR SITES

To conduct the survey of African Ramsar sites, we revised the original survey instrument used for the first phase of the research in the United States⁶⁹ and adapted it to the African context of wetlands management, adding sections devoted to ecosystem services provided by the site and challenges related to managing the site. The survey was also translated from English to French so that it was available in the two most common languages in the region. The survey was announced on the Ramsar website⁷⁰ and African Ramsar site managers and national focal points were e-mailed requests to participate in the survey. Respondents could submit responses by e-mail, on-line,⁷¹ or hard copy.⁷² We collected twenty-six surveys from eighteen countries covering the five sub-regions of the continent, representing approximately eleven percent of the number of African sites and more than twenty-two percent of the total area designated as Ramsar sites in Africa as of the date of the survey's commencement.⁷³

As we assessed the results, we contacted several respondents with further follow-up questions.⁷⁴ Like the U.S. survey, our focus was to determine the extent to which African Ramsar sites identified and promoted their international designation and the effects, if any, of the designation. Similar to the results of the U.S. survey, we found that Ramsar designation in Africa provides varying levels of benefits to the sites and the surrounding communities.

The brief descriptions of twenty-six sites (below in alphabetical order by country) highlight some of the wide range of ecosystem services they provide.⁷⁵ Many of the sites are Important Bird Areas,⁷⁶ which harkens back to one of the

at a Party's invitation. *Ramsar Manual*, supra note 16, at 65-67. Ramsar Secretariat staff and experts typically visit the site to assess the situation and make recommendations. See, e.g., Ramsar Secretariat, *Mission Report: Lake Natron Basin, Ramsar Advisory Mission No. 59* (Feb. 17-29, 2008), available at http://www.ramsar.org/ram/ram_rpt_59e.htm (report on proposed soda ash facility adjacent to Lake Natron).

69. Gardner & Connolly, supra note 12, at 10103.

70. The Ramsar Bulletin Board, Survey of Ramsar Sites in Africa/Enquête sur certains sites Ramsar en Afrique, http://www.ramsar.org/archives/archives_bulletin071114.htm (last visited Jan. 9, 2009).

71. See University of South Carolina School of Law, Ramsar Convention on Wetlands: Survey of Select African Sites Listed as Wetlands of International Importance October 2008, <http://law.sc.edu/wetlands/ramsar/en-survey.shtml> (last visited Oct. 26 2008).

72. Several responses were collected at the African Regional Meeting in Yaoundé, Cameroon, in November 2007.

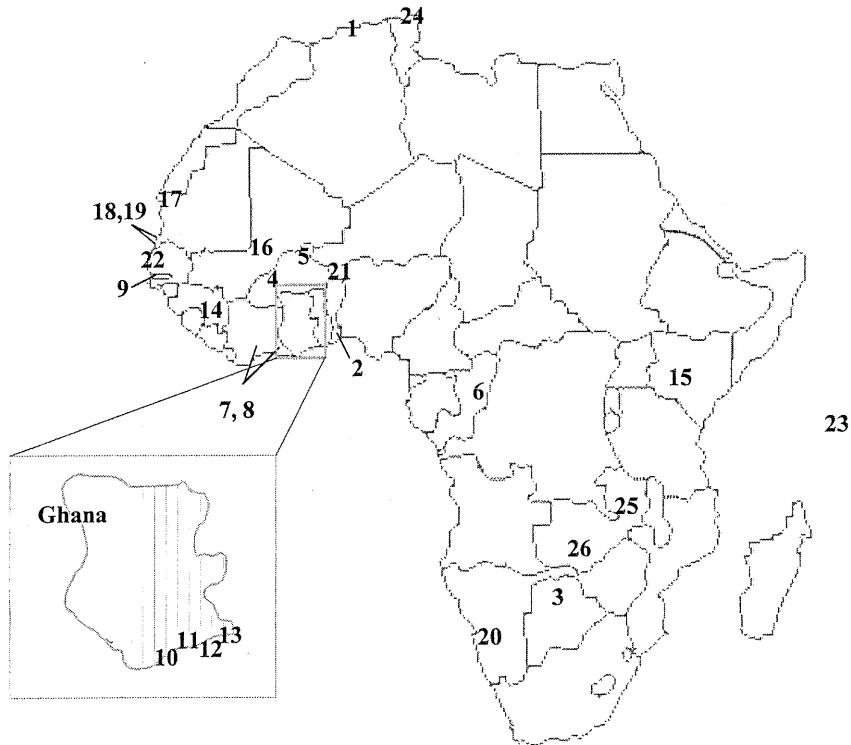
73. These data are compiled from *Ramsar List*, supra note 5, as of October 18, 2007.

74. All respondents were also provided an opportunity to comment on a draft of this article.

75. The descriptions are primarily based on the survey responses and RIS DATABASE, supra note 40.

76. Important Bird Areas "are priority areas for the conservation of globally threatened, range restricted and congregatory birds." Bird Life International, The Important Bird Areas Program in the Americas, http://www.birdlife.org/action/science/sites/american_ibas/index.html (last visited Oct. 26, 2008). "As of 2004, over 7,500 sites in nearly 170 countries have been identified as Important Bird Areas." Bird Life International, Important Bird Areas (IBAs), <http://www.birdlife.org/action/science/sites/index.html> (last visited Oct. 26, 2008).

FIGURE 1. Sites Included in the Survey



- | | |
|---|--|
| 1. Réserve Naturelle du Lac de Réghaïa, Algeria | 13. Anlo-Keta Lagoon Complex, Ghana |
| 2. Basse Vallée de l'Ouémé, Lagune de Porto-Novo, Lac Nokoué, Benin | 14. Niger Source, Guinea |
| 3. Okavango Delta System, Botswana | 15. Lake Naivasha, Kenya |
| 4. La Mare aux hippopotames, Burkina Faso | 16. Delta Intérieur du Niger, Mali |
| 5. La Mare d'Oursi, Burkina Faso | 17. Parc National du Banc d'Arguin, Mauritania |
| 6. La Réserve Communautaire du Lac Télé/ Likouala-aux-Herbes, Congo | 18. Parc National du Diawling, Mauritania |
| 7. Parc National d'Azagny, Côte d'Ivoire | 19. Chat Tboul, Mauritania |
| 8. N'Ganda N'Ganda, Côte d'Ivoire | 20. Walvis Bay, Namibia |
| 9. Baobolon Wetland Reserve, Gambia | 21. Zone humide du moyen Niger, Niger |
| 10. Muni Lagoon, Ghana | 22. Djoudj, Senegal |
| 11. Sakumo Lagoon, Ghana | 23. Port Launay Coastal Wetlands, Seychelles |
| 12. Songor Lagoon, Ghana | 24. Ichkeul, Tunisia |
| | 25. Bangweulu Swamps, Zambia |
| | 26. Kafue Flats Wetlands, Zambia |

original purposes (and the formal title) of the Ramsar Convention. But the respondents reported on services well beyond those related to bird habitat. The services encompassed almost all of those mentioned in the Millennium Ecosystem Assessment: provisioning (fish and game, fresh water, fuel, and medicines); regulating (carbon sequestration, groundwater recharge, water purification, soil retention, flood control, and habitat for pollinators); cultural (spiritual, recre-

FIGURE 2.

Provisioning Benefits

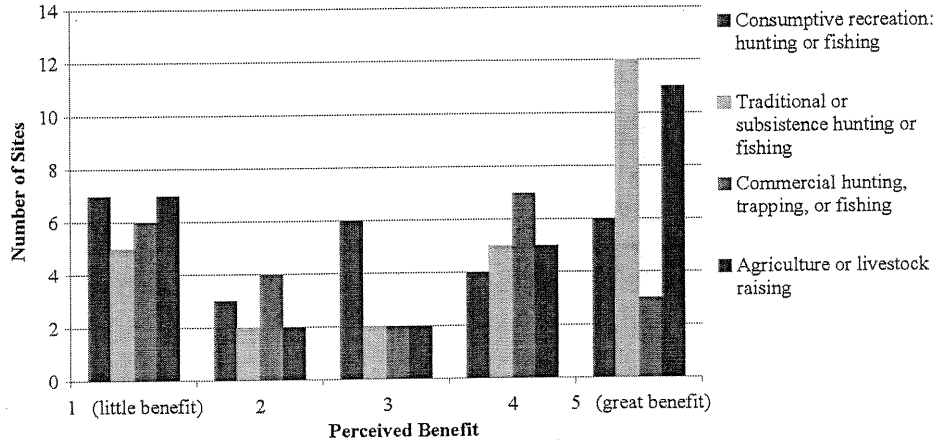
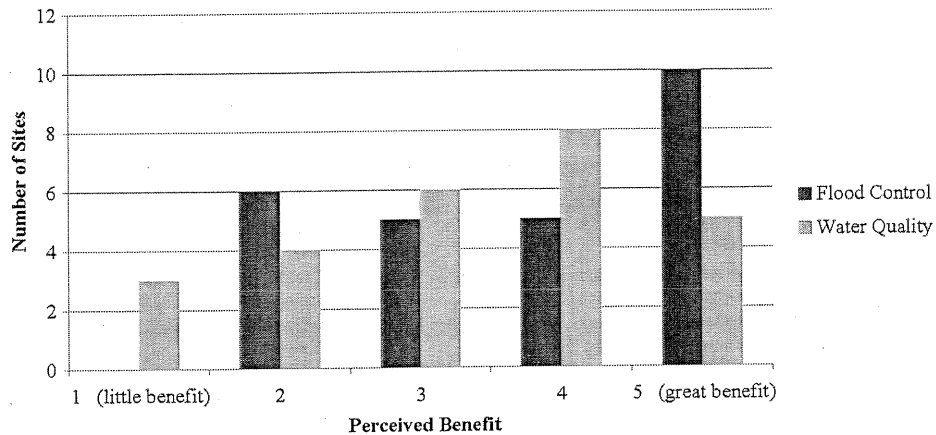


FIGURE 3.

Regulating Benefits



ational, aesthetic, and educational); and supporting (soil formation).⁷⁷ The following graphs illustrate the responses to the specific survey questions. The continued provision of these ecosystem services are threatened in many cases, however, by various challenges discussed further below.

77. MILLENNIUM ECOSYSTEM ASSESSMENT, *supra* note 1, at 2 (Table 1).

FIGURE 4.

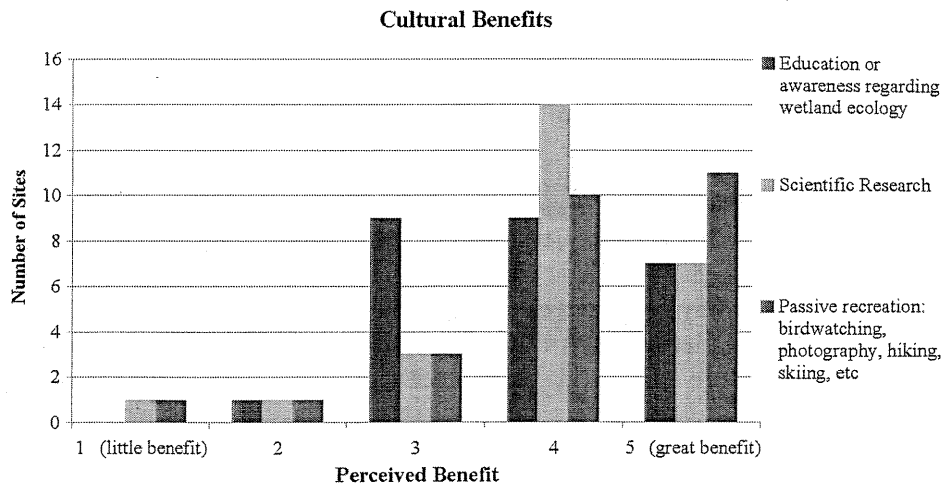
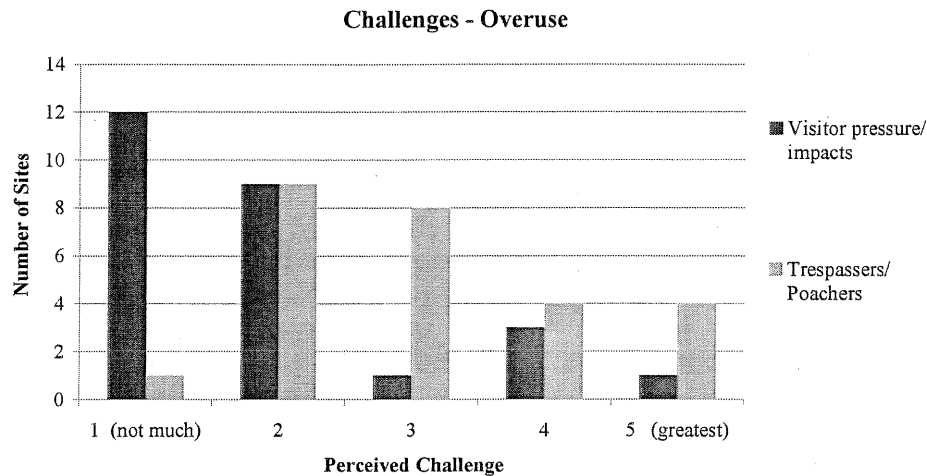


FIGURE 5.



A. DESCRIPTION OF SURVEYED AFRICAN RAMSAR SITES

Algeria

Réserve Naturelle du Lac de Réghaïa (842 hectares; designated in June 2003): This Mediterranean site includes a coastal marsh and a lake with beautiful beaches.⁷⁸ In an area marked by draining projects during French colonial times,

78. RIS DATABASE, *supra* note 40, Algeria, *Réserve Naturelle du Lac de Réghaïa: Summary Description*.

the coastal marsh remains as the final remnant of the Mitidja.⁷⁹ The site is classified as an Important Bird Area,⁸⁰ providing significant habitat for migratory species that traverse the Mediterranean Sea and Sahara Desert.⁸¹ More than 150,000 tourists visit the lake and beach annually,⁸² which offers youth employment opportunities in the tourism and recreation sectors.⁸³

Benin

Basse Vallée de l'Ouémé, Lagune de Porto-Novo, Lac Nokoué (91,600 hectares; designated in January 2000): This coastal site consists of several ecosystems including swamps, flooded prairies, areas dominated by floating vegetation, and mangroves.⁸⁴ An Important Bird Area,⁸⁵ it is also a significant habitat for at least seventy-eight species of fish.⁸⁶ The site supports approximately 24,000 professional fishers and 13,000 seasonal fishers, which in turn

79. *Id.* The Mitidja is the plain that lies south of Algiers. In 1841, Alexis de Tocqueville noted that draining this area would be instrumental for French colonization:

There is another preparatory task . . . if we want to move beyond the Massif and colonize the Mitidja: this is sanitation. All the swamps that make the plain are located at the foot of the Massif, because the Massif stops the waters that pour from the Atlas to the sea and forces them to wind left and right on fairly flat land, where they spread and flow slowly and with difficulty If we really mean to populate the Mitidja, however, we must lose no time in taking care of this problem, not so much, perhaps, to cultivate the fairly mediocre lands covered by the swamps, but rather to make the more fertile lands around them healthy and habitable.

ALEXIS DE TOCQUEVILLE, *Essay on Algeria, in WRITINGS ON EMPIRE AND SLAVERY* 59, 86 (Jennifer Pitts ed. & trans., JHU Press 2003) (1841) (footnote omitted). Six decades later, it was reported that the

Unwatering of the plain of the Mitidja immediately south of Algiers, has been effected by a means of a network of canals, which empty into the numerous rivers that traverse the plain. This district, which was formerly a pestilential swamp, known as "the grave of Europeans," is now one of the richest and best cultivated in the colony.

EDWARD D. MCQUEEN GRAY, *GOVERNMENT RECLAMATION WORK IN FOREIGN COUNTRIES* 48 (1909).

80. Responses to Convention De Ramsar Sur Les Zones Humides Enquete Sur Des Zones Humides D'Importance Internationales D'Afrique [Ramsar Convention on Wetlands Survey on Select African Sites Listed as Wetlands of International Importance] by Mohamed Seghir Noual, Directeur de la Protection de la Faune et de la Flore, Direction Générale de Forêts, in *Réserve Naturelle du Lac de Réghaïa, Alg.*, question 10 (Nov. 30, 2007) (on file with authors) [hereinafter Noual].

81. RIS DATABASE, *supra* note 40, *Algeria, Réserve Naturelle du Lac de Réghaïa: Summary Description*.

82. Noual, *supra* note 80, question 9.

83. *Id.* question 8(a).

84. RIS DATABASE, *supra* note 40, *Benin, Basse Vallée de l'Ouémé, Lagune de Porto-Novo, Lac Nokoué: Summary Description*.

85. Responses to Convention De Ramsar Sur Les Zones Humides Enquete Sur Des Zones Humides D'Importance Internationales D'Afrique [Ramsar Convention on Wetlands Survey on Select African Sites Listed as Wetlands of International Importance] by Camille-Alex Dagba, Chef de Département, Agence Béninoise pour l'Environnement, in *Basse Vallée de l'Ouémé, Lagune de Porto-Novo, Lac Nokoué, Benin*, question 10 (Nov. 30, 2007) (on file with authors) [hereinafter Dagba].

86. RIS DATABASE, *supra* note 40, *Benin, Basse Vallée de l'Ouémé, Lagune de Porto-Novo, Lac Nokoué: Summary Description*.

provides related jobs for about 200,000 people.⁸⁷ In addition, palm trees are an important source of construction materials.⁸⁸

Botswana

Okavango Delta System (5,537,400 hectares; designated in December 1996): Until recently, the site, which is “the only inland delta in the sub-Saharan Africa,”⁸⁹ was considered the largest Ramsar site in the world.⁹⁰ The area supports an incredible range of biodiversity, from birds, mammals, and fish to plants and insects.⁹¹ Also designated as a World Heritage Site,⁹² it is the country’s primary tourist destination, and tourism is the country’s second largest industry after mining.⁹³ Locals benefit from the site’s natural resources (such as fish, reeds, and thatching grass),⁹⁴ and tourism-related employment opportunities (such as the sale of crafts and curios, sport and safari hunting, and travel services).⁹⁵ The University of Botswana has established a research center to study the site.⁹⁶

Burkina Faso

La Mare aux Hippopotames (19,200 hectares; designated in June 1990): This site is a lake, pool, and marsh complex located in the Black Volta River’s floodplain.⁹⁷ A World Heritage Site, Biosphere Reserve, and Important Bird Area,⁹⁸ it provides habitat for many mammals, including (as its name suggests)

87. *Id.*

88. *Id.*

89. RIS DATABASE, *supra* note 40, *Botswana, Okavango Delta System: Summary Description*.

90. *See Largest Site, supra* note 40.

91. RIS DATABASE, *supra* note 40, *Botswana, Okavango Delta System: Summary Description*.

92. Responses to Ramsar Convention on Wetlands Survey of Select African Sites Listed as Wetlands of International Importance by Portia Kelefilwe Segomelo, Deputy Dir., Dep’t of Env’t. Affairs, Ministry of Env’t, Wildlife & Tourism, in *Okavango Delta System, Bots.*, question 10 (Oct. 23, 2007) (on file with authors) [hereinafter Segomelo]. The World Heritage Centre was born out of the 1972 Convention concerning the Protection of the World Cultural and Natural Heritage, an international cooperative effort to protect the world’s natural and scenic areas and historic sites. UNESCO, About World Heritage: Brief History, <http://whc.unesco.org/en/about> (last visited Jan. 15, 2009). There are currently 679 cultural, 174 natural, and 25 mixed World Heritage Sites in 145 countries. UNESCO, The List, <http://whc.unesco.org/en/list> (last visited Jan. 15, 2009). As of December 2008, forty-one Ramsar Sites are also inscribed on the World Heritage list. Ramsar Secretariat, Ramsar and World Heritage Sites, http://www.ramsar.org/world_heritage.htm (last visited Jan. 15, 2009).

93. Segomelo, *supra* note 92, question 6(b).

94. *Id.* question 6(a).

95. *Id.* question 6(d).

96. *Id.* question 6(f).

97. RIS DATABASE, *supra* note 40, *Burkina Faso, La Mare aux Hippopotames: Summary Description*.

98. Responses to Convention De Ramsar Sur Les Zones Humides Enquete Sur Des Zones Humides D’Importance Internationales D’Afrique [Ramsar Convention on Wetlands Survey on Select African Sites Listed as Wetlands of International Importance] by Yemboado Georges Namoano, Ingénieur des Eaux et Forêts, Chef de Service des Chasses et de la Promotion des Filières de Production Faunique, Direction de la Faune et

two hippopotamus species.⁹⁹ The site also benefits locals through fishing, herding, beekeeping, water supply, and ecotourism.¹⁰⁰

La Mare d'Oursi (45,000 hectares; designated in June 1990): The country's other surveyed site, which is an Important Bird Area¹⁰¹ and an ornithological sanctuary, includes a freshwater lake and reedbeds.¹⁰² It is particularly important for Palearctic migratory bird species.¹⁰³ Locals use the site for fishing, herding, and water supply.¹⁰⁴ Visits by tourists also support an ecotourism industry.¹⁰⁵

Congo

La Réserve Communautaire du Lac Télé/Likouala-aux-Herbes (438,960 hectares; designated in June 1998): This site consists of several types of wetlands, including swamp forest, flooded savannah, and floating prairies.¹⁰⁶ An Important Bird Area,¹⁰⁷ it also hosts mammals such as primates,¹⁰⁸ duikers, and boar.¹⁰⁹ Owned by adjacent local communities, the site benefits locals in many ways, especially with respect to its fishery resources.¹¹⁰ The area is the source of traditional medicines and has been the subject of research conducted by the Université Marien Ngouabi de Brazzaville and foreign universities.¹¹¹

des Chasses, Ministère l'Environnement et du Vie, in *La Mare aux Hippopotames*, Burk. Faso, question 9 (Nov. 16, 2007) (on file with authors) [hereinafter *Namoano, La Mare aux Hippopotames*].

99. RIS DATABASE, *supra* note 40, *Burkina Faso, La Mare aux Hippopotames: Summary Description*.

100. *Namoano, La Mare aux Hippopotames, supra* note 98, question 7(a).

101. Responses to Convention De Ramsar Sur Les Zones Humides Enquete Sur Des Zones Humides D'Importance Internationales D'Afrique [Ramsar Convention on Wetlands Survey on Select African Sites Listed as Wetlands of International Importance] by Yemboado Georges Namono, Ingénieur des Eaux et Forêts, Chef de Service des Chasses et de la Promotion des Filières de Production Faunique, Direction de la Faune et des Chasses, Ministère l'Environnement et du Vie, in *La Mare d'Oursi*, Burk. Faso, question 9 (Nov. 17, 2007) (on file with authors) [hereinafter *Namoano, La Mare d'Oursi*].

102. RIS DATABASE, *supra* note 40, *Burkina Faso, La Mare d'Oursi, Summary Description*.

103. *Id.*

104. *Namoano, La Mare d'Oursi, supra* note 101, question 7(a).

105. *Id.*

106. RIS DATABASE, *supra* note 40, *Congo, La Réserve Communautaire du Lac Télé/Likouala-aux-Herbes: Summary Description*.

107. Responses to Convention De Ramsar Sur Les Zones Humides Enquete Sur Des Zones Humides D'Importance Internationales D'Afrique [Ramsar Convention on Wetlands Survey on Select African Sites Listed as Wetlands of International Importance] by Gilbert Madouka, Point Focal National de la Convention de Ramsar, Direction Générale de l'Environnement, in *La Réserve Communautaire du Lac Télé/Likouala-aux-Herbes*, Congo, question 10 (2007) (on file with authors) [hereinafter *Madouka*].

108. In August 2008, at the time this paper was being written, 125,000 Western lowland Gorillas were surveyed in the Lac Télé Ramsar site, more than double their estimated worldwide population. The Ramsar Bulletin Board, *Rare Gorillas in Congo Ramsar Site*, http://www.ramsar.org/index_bulletin.htm (last visited Aug. 6, 2008).

109. RIS DATABASE, *supra* note 40, *Congo, La Réserve Communautaire du Lac Télé/Likouala-aux-Herbes: Summary Description*.

110. *Id.*

111. *Madouka, supra* note 107, question 8(f).

Côte d'Ivoire

Parc National d'Azagny (19,400 hectares; designated in February 1996): A protected area since 1960, this site is a coastal system that includes lagoons, savannah, swamps, and mangroves.¹¹² It is known for its biodiversity and providing habitat for migratory birds and fish, as well as larger mammals such as the forest elephant and chimpanzees¹¹³ and reptiles such as the dwarf crocodile and four species of endangered sea turtles.¹¹⁴ Locals benefit from the flood control and sediment trapping functions of the site.¹¹⁵ Locals also benefit from tourists who purchase local goods (e.g., artisan products) and services (e.g., boat transportation).¹¹⁶

N'Ganda N'Ganda (14,402 hectares; designated in October 2005): This coastal site consists of forests, savannah, mangroves, and pools.¹¹⁷ An Important Bird Area,¹¹⁸ it also controls floods and recharges the aquifer.¹¹⁹ Locals, who use the site to hunt, fish, and produce medicinal and construction materials, view the site as imbued with cultural significance.¹²⁰ The Ehotile consider themselves "children of the lagoon" and believe that their ancestors lived in and emerged from the bottom of the lagoon.¹²¹ Ecotourism is an additional benefit related to the site.¹²²

Gambia

Baobolon Wetland Reserve (20,000 hectares; designated in September 1996): Located along the Gambia River and its tributaries (bolons), the site contains diverse wetland ecosystems, such as tidal flats, mangroves, salt marsh, and

112. RIS DATABASE, *supra* note 40, *Côte d'Ivoire, Parc National d'Azagny: Summary Description*.

113. RIS DATABASE, *supra* note 40, *Côte d'Ivoire, Parc National d'Azagny: Ramsar Information Sheet (1995)*.

114. RIS DATABASE, *supra* note 40, *Côte d'Ivoire, Parc National d'Azagny: Ramsar Information Sheet (2005 Annex 3)*.

115. RIS DATABASE, *supra* note 40, *Côte d'Ivoire, Parc National d'Azagny: Summary Description*.

116. Responses to Convention De Ramsar Sur Les Zones Humides Enquete Sur Des Zones Humides D'Importance Internationales D'Afrique [Ramsar Convention on Wetlands Survey on Select African Sites Listed as Wetlands of International Importance] by Germain Bomisso, Chef de Secteur (Directeur du Parc), Office Invoirien des Parcs et Réserves, in *Parc National d'Azagny, Côte d'Ivoire*, question 8 (Nov. 26, 2007) (on file with authors) [hereinafter Bomisso].

117. RIS DATABASE, *supra* note 40, *Côte d'Ivoire, N'Ganda N'Ganda: Summary Description*.

118. Responses to Convention De Ramsar Sur Les Zones Humides Enquete Sur Des Zones Humides D'Importance Internationales D'Afrique [Ramsar Convention on Wetlands Survey on Select African Sites Listed as Wetlands of International Importance] by Bamba Singo, Ingénieur des Eaux et Forêts, Ministère de l'Environnement, des Eaux et Forêts, in *N'Ganda N'Ganda, Côte d'Ivoire*, question 10 (Nov. 30, 2007) (on file with authors) [hereinafter Singo].

119. RIS DATABASE, *supra* note 40, *Côte d'Ivoire, N'Ganda N'Ganda: Summary Description*.

120. *Id.*

121. *Id.*

122. Singo, *supra* note 118, question 10.

savannah woodland.¹²³ An Important Bird Area,¹²⁴ the site provides food sources for locals; its tidal flats have been manipulated for rice production and the mangroves are critical spawning grounds for fish.¹²⁵

Ghana

Muni Lagoon (8670 hectares; designated in August 1992): This site is a coastal lagoon and is recognized as an Important Bird Area.¹²⁶ The area provides a host of local benefits through its natural resources, including fish, crab, salt, and fuel wood.¹²⁷ The site is also culturally important because local authorities use the forest adjacent to the lagoon "as the hunting grounds during their annual 'Aboakyir Festival' in Winneba."¹²⁸

Sakumo Lagoon (1340 hectares; designated in August 1992): Located in an urban area,¹²⁹ the site is principally a coastal lagoon.¹³⁰ It is an Important Bird Area,¹³¹ and it offers local fishers an alternative when sea fishing is prohibited by spiritual beliefs.¹³² School groups visit the site, which results in better appreciation for the value of wetlands, and universities have conducted research there.¹³³ Ownership of the site is in dispute, however. The government originally acquired it in 1952 for a harbor project. Because the project was never completed, the traditional land owners are reasserting their claims.¹³⁴

Songor Lagoon (28,740 hectares; designated in August 1992): Owned by the heads of local clans,¹³⁵ the site is primarily a lagoon and mudflats.¹³⁶ It offers

123. RIS DATABASE, *supra* note 40, *Gam., Baobolon Wetland Reserve: Summary Description*.

124. Responses to Ramsar Convention on Wetlands Survey of Select African Sites Listed as Wetlands of International Importance by Alpha Omar Jallow, Acting Dir., Dep't of Parks & Wildlife Mgmt., in Baobolon Wetland Reserve, Gam., question 10 (Nov. 30, 2007) (on file with authors) [hereinafter Jallow].

125. RIS DATABASE, *supra* note 40, *Gam., Baobolon Wetland Reserve: Summary Description*.

126. Responses to Ramsar Convention on Wetlands Survey of Select African Sites Listed as Wetlands of International Importance by Sulemana Adamu, Protected Area Manager, Wetland Conservation Unit, Wildlife Div., Forestry Comm'n, in Muni Lagoon, Ghana, question 10 (Nov. 26, 2007) (on file with authors) [hereinafter Adamu].

127. *Id.* question 8.

128. *Id.* question 8(a). The Aboakyir Festival is held in the central region of Ghana each May to commemorate the migration of the Winneba and Simpa from the ancient Western Sudan Empire. Ghana Home Page, <http://www.ghanaweb.com/GhanaHomePage/tribes/aboakyer.html> (last visited Jan. 21, 2009).

129. Responses to Ramsar Convention on Wetlands Survey of Select African Sites Listed as Wetlands of International Importance by Charles C. Amankwah, Wetlands Coordinator, Wildlife Div., Forestry Comm'n, in Sakumo Lagoon, Ghana, question 47 (Nov. 5, 2007) (on file with authors) [hereinafter Amankwah].

130. RIS DATABASE, *supra* note 40, *Ghana, Sakumo Lagoon: Summary Description*.

131. Amankwah, *supra* note 129, question 10.

132. *Id.* question 8(a).

133. *Id.* question 8(f).

134. *Id.* question 13.

135. Responses to Ramsar Convention on Wetlands Survey of Select African Sites Listed as Wetlands of International Importance by Dickson Agyeman, Senior Wildlife Officer, Wildlife Div., Forestry Comm'n, in Songor Lagoon, Ghana, question 11 (Nov. 23, 2007) (on file with authors) [hereinafter Agyeman].

136. RIS DATABASE, *supra* note 40, *Ghana, Songor Lagoon: Summary Description*.

significant habitat for three species of endangered sea turtles: green, olive ridley, and leatherback (critically endangered).¹³⁷ The site benefits locals through employment related to fishing, farming, salt harvesting, hunting, livestock production, recreation, and tourism.¹³⁸

Anlo-Keta Lagoon Complex (127,780 hectares; designated in August 1992): The largest of Ghana's Ramsar-designated lagoons, the site is located on the Volta River estuary.¹³⁹ It is an Important Bird Area,¹⁴⁰ and it is used for fishing, salt harvesting, fuel wood production, and hunting.¹⁴¹ The site's groundwater is also a source for irrigation and drinking water.¹⁴²

Guinea

Niger Source (180,400 hectares; designated in February 2002): The site, near the Guinea-Sierra Leone border, contains the headwaters of the 4660-kilometer Niger River,¹⁴³ which flows through five countries.¹⁴⁴ It hosts an array of biodiversity¹⁴⁵ and is recognized as an Important Bird Area, National Wildlife Area, and National and Regional Park.¹⁴⁶ Locals use the site for fishing, grazing, farming, and pastoralist activities.¹⁴⁷

Kenya

Lake Naivasha (30,000 hectares; designated in April 1995): The site is "one of the few freshwater lakes in eastern Africa,"¹⁴⁸ providing habitat for at least 350 waterbird species, including one percent of the world's *Fulica cristata* (red-knobbed coot) population.¹⁴⁹ It is also home to hippopotamus, buffalo, and

137. *Id.*

138. Agyeman, *supra* note 135, question 8(a).

139. RIS DATABASE, *supra* note 40, *Ghana, Keta Lagoon Complex: Summary Description*.

140. Responses to Ramsar Convention on Wetlands Survey of Select African Sites Listed as Wetlands of International Importance by Thomas Nana Bayansford Acquah, Protected Area Manager, Wildlife Div., Forestry Comm'n, in *Keta Lagoon Complex, Ghana*, question 10 (Mar. 3, 2008) (on file with authors) [hereinafter Acquah].

141. RIS DATABASE, *supra* note 40, *Ghana, Keta Lagoon Complex: Summary Description*.

142. Acquah, *supra* note 140, question 8(a).

143. RIS DATABASE, *supra* note 40, *Guinea, Niger Source: Summary Description*.

144. The Niger runs through Guinea, Mali, Niger, on the border with Benin and then through Nigeria. WWF, Niger: Boomerang River in Sub-Saharan Africa, http://www.panda.org/about_wwf/what_we_do/freshwater/about_freshwater/rivers/niger/index.cfm (last visited Nov. 11, 2008).

145. RIS DATABASE, *supra* note 40, *Guinea, Niger Source: Summary Description*.

146. Responses to Ramsar Convention on Wetlands Survey of Select African Sites Listed as Wetlands of International Importance by Atigou Balde, Engineer, Nat'l Directorate for Mgmt. of Water Res., Ministry of Water & Energy, in *Niger Source, Guinea*, question 10 (Oct. 31, 2007) (on file with authors) [hereinafter Balde].

147. RIS DATABASE, *supra* note 40, *Guinea, Niger Source: Summary Description*.

148. RIS DATABASE, *supra* note 40, *Kenya, Lake Naivasha: Summary Description*.

149. *Id.*

waterbuck.¹⁵⁰ Locals use the site for water for domestic animals and livestock, subsistence and commercial fishing, and grazing in the dry season.¹⁵¹ Additional benefits are the generation of geothermal power and tourism.¹⁵² The most significant economic activity is horticulture, with cut flowers exported primarily to the Netherlands and Great Britain.¹⁵³

Mali

Delta Intérieur du Niger (4,119,500 hectares; designated in February 2004): The site is the largest freshwater wetland system in West Africa¹⁵⁴ and is the world's sixth largest Ramsar site.¹⁵⁵ Rich in biodiversity, the area supports more than 350 migratory bird species and approximately 140 fish species, as well as reptiles (such as the rock python, the Nile varan, the cobra, and viper) and mammals (such as hippopotamus and manatee).¹⁵⁶ The employment of more than one million people depends on the site's resources.¹⁵⁷ Fishing, livestock, breeding, and agriculture in the area are related to the rhythm of flooding.¹⁵⁸

Mauritania

Parc National du Banc d'Arguin (1,200,000 hectares; designated in October 1982): The country's largest Ramsar site, it extends over one-third of Mauritania's Atlantic coast.¹⁵⁹ The site contains seagrass beds that support mollusks and crustaceans and provides critical feeding and nursery areas for commercial fish species.¹⁶⁰ Also designated a World Heritage Site, the area hosts more than two million wintering shorebirds, green and leatherback sea turtles, and the

150. *Id.*

151. Responses to Ramsar Convention on Wetlands Survey of Select African Sites Listed as Wetlands of International Importance by Fred Omengo, Wetlands Programme Coordinator, Kenya Wildlife Serv., in Lake Naivasha, Kenya, question 8(a) (Jan. 1, 2008) (on file with authors) [hereinafter Omengo].

152. *Id.* question 8(b).

153. *Id.* question 8(c).

154. RIS DATABASE, *supra* note 40, *Mali, Delta Intérieur du Niger: Summary Description*.

155. The larger sites are: Queen Maud Gulf, Canada (6,278,200 ha); Grands affluents, Congo (5,908,074 ha); Sudd, Sudan (5,700,000 ha); Okavango Delta System, Botswana (5,537,400 ha); and Plaines d'Inondation des Bahr Aouk et Salamat, Chad (4,922,000 ha). *Ramsar List, supra* note 5. *See also Largest Site, supra* note 40 (Congo is soon adding what will be world's largest site).

156. RIS DATABASE, *supra* note 40, *Mali, Delta Intérieur du Niger: Summary Description*.

157. Responses to Convention De Ramsar Sur Les Zones Humides Enquete Sur Des Zones Humides D'Importance Internationales D'Afrique [Ramsar Convention on Wetlands Survey on Select African Sites Listed as Wetlands of International Importance] by Soumana Timbo, Coordinateur du Plan d'Action de Gestion de Zones Humides, Direction Nationale de la Conservation de la Nature, Ministère de l'Environnement, in *Delta Intérieur du Niger*, Mali, question 8(a) (Nov. 5, 2007) (on file with authors) [hereinafter Timbo].

158. *Id.*

159. RIS DATABASE, *supra* note 40, *Mauritania, Parc National du Banc d'Arguin: Summary Description*.

160. *Id.*

endangered Mediterranean monk seal.¹⁶¹

Parc National du Diawling (15,600 hectares; designated in August 1994): A saline floodplain, the site has marshes, sand dunes, coastal lagoons, and mangroves.¹⁶² In addition to being an Important Bird Area, National Wildlife Area, and National Park, it is designated as a World Heritage Site,¹⁶³ which provides habitat for birds, fish, shrimp, prawns, and mammals (including patas monkeys).¹⁶⁴ Local people rely on the site for fishing, grazing, harvesting, and gathering.¹⁶⁵

Chat Tboul (15,500 hectares; designated in November 2000): Located north of the Parc National du Diawling, this site is a complex of wetlands, including intertidal mudflats and marshes, an estuary, and lakes and pools, that lies behind a ten-kilometer stretch of sand dunes along the Atlantic coast.¹⁶⁶ The area supports a variety of waterbirds, such as the greater flamingo, white pelican, and avocet, as well as fish species. Locals use the site for small-scale fishing and grazing.¹⁶⁷

Namibia

Walvis Bay (12,600 hectares; designated in August 1995): An Important Bird Area and Nature Reserve,¹⁶⁸ the site is a tidal lagoon complex.¹⁶⁹ It hosts as many as forty-eight bird species,¹⁷⁰ including eleven endangered species.¹⁷¹ The site is considered "one of the biggest tourist attractions at the Namibian coast, attracting thousands of visitors a year,"¹⁷² thereby contributing to the local and national economy.

161. RIS DATABASE, *supra* note 40, *Mauritania, Parc National du Banc d'Arguin: Ramsar Information Sheet*.

162. RIS DATABASE, *supra* note 40, *Mauritania, Parc National du Diawling: Summary Description*.

163. Responses to Convention De Ramsar Sur Les Zones Humides Enquete Sur Des Zones Humides D'Importance Internationales D'Afrique [Ramsar Convention on Wetlands Survey on Select African Sites Listed as Wetlands of International Importance] by Amadou Ba, Directeur des Aires Protégées et du Littoral, Ministère Déléguée auprès du Premier Ministre chargé de l'Environnement, in *Parc National du Diawling, Mauritania*, question 10 (Nov. 30, 2007) (on file with authors) [hereinafter Amadou].

164. RIS DATABASE, *supra* note 40, *Mauritania, Parc National du Diawling: Summary Description*.

165. *Id.*

166. RIS DATABASE, *supra* note 40, *Mauritania, Chat Tboul: Summary Description*.

167. *Id.*

168. Responses to Ramsar Convention on Wetlands Survey of Select African Sites Listed as Wetlands of International Importance by Holger Kolberg, Principal Conservation Scientist, Ministry of Env't and Tourism, in *Walvis Bay, Namib.*, question 10 (Nov. 19, 2007) (on file with authors) [hereinafter Kolberg].

169. RIS DATABASE, *supra* note 40, *Namib., Walvis Bay: Summary Description*.

170. K. Wearne & L.G. Underhill, *Walvis Bay, Namibia: A Key Wetland for Waders and Other Coastal Birds in Southern Africa*, 107 WADER STUDY GROUP BULL. 24, 25 (2005).

171. RIS DATABASE, *supra* note 40, *Namib., Walvis Bay: Summary Description*.

172. Kolberg, *supra* note 168, question 8(a).

Niger

Zone Humide du Moyen Niger (88,050 hectares; designated in June 2001): The site is a transboundary wetland along the borders of Niger, Benin, and Nigeria.¹⁷³ It includes portions of the Niger River, as well as adjacent floodplains and ponds, and provides important bird and fish habitat.¹⁷⁴ Although the national government owns the site, local people retain customary rights of use.¹⁷⁵ The site offers locals water for domestic purposes and livestock, fish as a protein source, and income related to tourism.¹⁷⁶

Senegal

Djoudj (16,000 hectares; designated in July 1977): A World Heritage Site and Important Bird Area, this site is a complex of seasonal brackish lakes and pools in the floodplain of the Senegal River.¹⁷⁷ It hosts many species of waterfowl, especially in January when individual numbers can reach 400,000.¹⁷⁸ Accordingly, the site attracts more than 10,000 people annually,¹⁷⁹ and these visitors benefit the economy locally (by employing guides and purchasing artisanal products)¹⁸⁰ and nationally (by purchasing visitor permits).¹⁸¹

Seychelles

Port Launay Coastal Wetlands (121 hectares; designated in November 2004): One of the smaller Ramsar sites in the African region,¹⁸² these mangrove wetlands are found on Mahé, the country's main island.¹⁸³ The area is rich in biodiversity, providing significant habitat for fish species, including the endemic goujon (*Pachypanchax playfairii* or golden panchax), and mammals such as the

173. RIS DATABASE, *supra* note 40, *Niger, Zone Humide du Moyen Niger: Summary Description*.

174. *Id.*

175. *Id.*

176. Responses to Convention De Ramsar Sur Les Zones Humides Enquete Sur Des Zones Humides D'Importance Internationales D'Afrique [Ramsar Convention on Wetlands Survey on Select African Sites Listed as Wetlands of International Importance] by Abdou Malam Issa, Point Focal Ramsar, Direction de la Faune, de la Pêche et de la Pisciculture, in *Zone Humide du Moyen Niger, Niger*, question 8(a) (Nov. 30, 2007) (on file with authors) [hereinafter Issa].

177. RIS DATABASE, *supra* note 40, *Sen., Djoudj: Summary Description*.

178. *Id.*

179. Responses to Convention De Ramsar Sur Les Zones Humides Enquete Sur Des Zones Humides D'Importance Internationales D'Afrique [Ramsar Convention on Wetlands Survey on Select African Sites Listed as Wetlands of International Importance] by Ousmane Kane, Chef de la Division Aires Marines Protégées et Zones Humides, Direction des Parcs Nationaux, Ministère de l'Environnement, in *Djoudj, Sen.*, question 9 (Nov. 30, 2007) (on file with authors) [hereinafter Kane].

180. *Id.* question 8(a).

181. *Id.* question 8(b).

182. There are eleven smaller sites ranging from 1 hectare (Ile Alcatraz, Guinea) to 120 hectares (La Réserve Naturelle du Lac des Oiseaux, Alg.). *Ramsar List, supra* note 5, at 5, 16.

183. RIS DATABASE, *supra* note 40, *Sey., Port Launay Coastal Wetlands: Summary Description*.

critically endangered sheath-tailed bat and Seychelles flying fox.¹⁸⁴ Locals use the site for recreation, and schoolchildren visit the site for environmental awareness purposes.¹⁸⁵ The site, which is a national park,¹⁸⁶ also provides ecotourism benefits and stabilizes the shoreline.¹⁸⁷

Tunisia

Ichkeul (12,600 hectares; designated in November 1980): One of the few Ramsar sites in the world that is also a Biosphere Reserve and World Heritage Site,¹⁸⁸ this seasonal lake (with brackish water and marshes) is one of North Africa's most important areas for migratory waterfowl.¹⁸⁹ Grazing for livestock is tolerated and local people are provided job opportunities as part-time fishers and national park employees.¹⁹⁰ The site has an eco-museum and information centre,¹⁹¹ and schools and universities hold field lectures at the site.¹⁹² Ecotourism (more than 5000 visitors annually) provides some additional local benefits.¹⁹³

Zambia

Bangweulu Swamps (1,100,000 hectares; designated in August 1991): The site, which is an Important Bird Area and includes national parks and game management areas,¹⁹⁴ supports abundant biodiversity. Notable species present at the site are the African elephant, African buffalo, Speke's gazelle, black lechwe, wattled crane, and shoebill.¹⁹⁵ The site provides flood control, recharges groundwater,

184. *Id.*

185. Responses to Ramsar Convention on Wetlands Survey of Select African Sites Listed as Wetlands of International Importance by Dr. Pugazhendhi Murugaiyan, Senior Project Officer, Wetlands & Rivers, Dep't of Env't, in Port Launay Coastal Wetlands, Sey., question 8(a) (Oct. 30, 2007) (on file with authors) [hereinafter Murugaiyan].

186. *Id.* question 10.

187. RIS DATABASE, *supra* note 40, *Sey., Port Launay Coastal Wetlands: Summary Description*.

188. RIS DATABASE, *supra* note 40, *Tunis., Ichkeul: Summary Description*.

189. *Id.*

190. *Id.*

191. *Id.*

192. Responses to Ramsar Convention on Wetlands Survey of Select African Sites Listed as Wetlands of International Importance by Fethi Ayache, Lecturer & Researcher, Faculty of Arts & Letters, Dep't of Geography, Sousse, Tunis. in *Ichkeul, Tunis.*, question 8(f) (Nov. 12, 2007) (on file with authors) [hereinafter Ayache].

193. *Id.* question 9. For further discussion of the importance of the economic value of the site in its natural condition, see David H.L. Thomas, Fethi Ayache & G. Edward Hollis, *Use and Non-Use Values in the Conservation of Ichkeul National Park, Tunisia*, 18 ENVTL. CONSERVATION 119 (1991).

194. Responses to Ramsar Convention on Wetlands Survey of Select African Sites Listed as Wetlands of International Importance by W. Chansa, Head of Research, Zambia Wildlife Authority, in *Bangweulu Swamps, Zambia*, question 10 (Nov. 30, 2007) (on file with authors) [hereinafter Chansa].

195. RIS DATABASE, *supra* note 40, *Zambia, Bangweulu Swamps: Summary Description*.

and improves water quality.¹⁹⁶ Locals also rely on the site for fish, and ecotourism offers economic benefits.¹⁹⁷ The Nachikufu caves, which contain bushpeople's paintings, are located on the site.¹⁹⁸

Kafue Flats (600,500 hectares; designated in August 1991): Also an Important Bird Area with national parks and game management areas,¹⁹⁹ the site contains "floodplains, grasslands, woodlands zones and geothermal areas of high biodiversity in a complex pattern of lagoons, oxbow lakes, abandoned river channels, marshes, and levees."²⁰⁰ Locals rely on the site as a source of clean water and use it for fishing, small-scale agriculture, and grazing.²⁰¹ Tourism, including trophy hunting, provides additional economic benefits.²⁰² The Ila people consider the site to have cultural and religious significance.²⁰³

B. CHALLENGES

The Millennium Ecosystem Assessment reported that worldwide the "primary direct drivers of [wetland] degradation and loss include infrastructure development, land conversion, water withdrawal, pollution, overharvesting and overexploitation, and the introduction of alien invasive species."²⁰⁴ The survey respondents report that African Ramsar sites face all of these challenges.

The survey asked respondents to rank eleven challenges on a scale from one (least) to five (greatest). Respondents were permitted to list multiple challenges in each category. Respondents also had the opportunity to identify other threats or challenges. Some of the listed challenges are interrelated. For example, visitor impacts and impacts from trespassers/poachers relate to overuse of the site, while at least three entries (effects of land-use activities on- or off-site, development pressure, and changes to water regime) are connected to conversion activities. Some challenges, such as desertification and climate change, are conditions that may be the result of activities far beyond the sites.

The greatest challenge facing African Ramsar sites appears to be the effects of land-use activities or practices (on- and off-site). Sixteen respondents (61.5%) listed this item as the greatest or second-greatest challenge.²⁰⁵ The next highest

196. *Id.*

197. Chansa, *supra* note 194, question 8(a).

198. RIS DATABASE, *supra* note 40, *Zambia, Bangweulu Swamps: Summary Description*.

199. Responses to Ramsar Convention on Wetlands Survey of Select African Sites Listed as Wetlands of International Importance by Griffin Kaize Shanungu, Wildlife Ecologist, Zambia Wildlife Authority, in *Kafue Flats, Zambia*, question 10 (Nov. 22, 2007) (on file with authors) [hereinafter Shanungu].

200. RIS DATABASE, *supra* note 40, *Zambia, Kafue Flats: Summary Description*.

201. Shanungu, *supra* note 199, question 8(a).

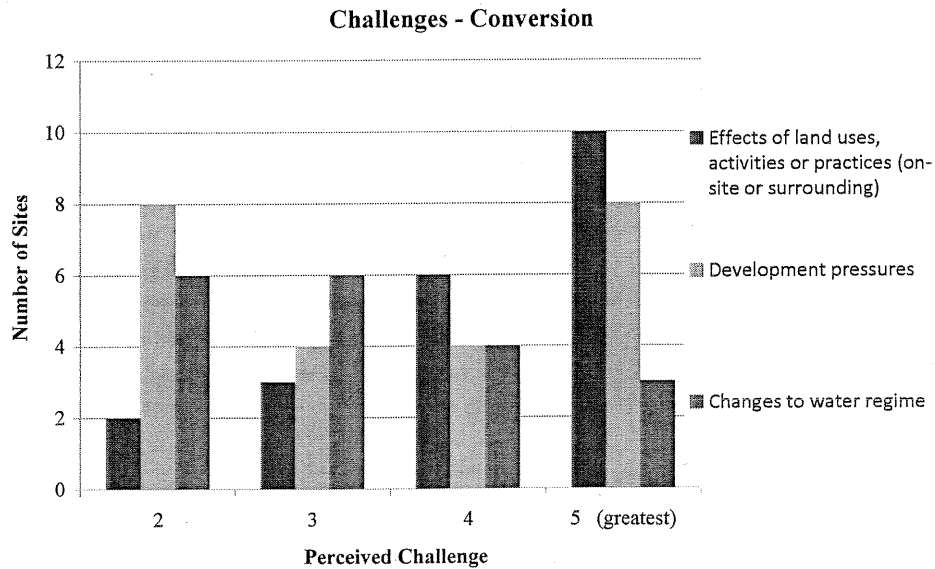
202. *Id.* question 8(e).

203. RIS DATABASE, *supra* note 40, *Zambia, Kafue Flats: Summary Description*.

204. MILLENIUM ECOSYSTEM ASSESSMENT, *supra* note 1, at 4.

205. Réserve Naturelle du Lac de Réghaïa, Alg.; Basse Vallée de l'Ouémé Lagune de Porto-Novo Lac Nokoué, Benin; Okavango Delta, Bots.; Mare aux Hippopotames and Mare d'Oursi, Burk. Faso; Muni Lagoon,

FIGURE 6.



response pertained to development pressures, with eleven respondents listing it as the greatest or second-greatest challenge.²⁰⁶ Similarly, seven respondents listed changes to a water regime as the greatest or second-greatest challenge.²⁰⁷

A separate survey question asked whether land ownership was an issue with respect to management of the site. Eight respondents identified land ownership as a problem.²⁰⁸ Not surprisingly, all eight had also listed effects of land-use activities and/or development pressures as the greatest or second-greatest challenge. For example, the respondent for Walvis Bay noted that the site had been designated as a nature reserve prior to the enclave coming under Namibia's jurisdiction in 1994.²⁰⁹ Once incorporated into Namibia, however, the protected status was no longer applicable.²¹⁰ Efforts to re-proclaim the area as a nature

Sakumo Lagoon, Songor Lagoon, and Anlo-Keta Lagoon, Ghana; Niger Source, Guinea; Lake Naivasha, Kenya; Delta Intérieur du Niger, Mali; Walvis Bay, Namib.; Zone Humide du Moyen Niger, Niger; Port Launay, Sey.; and Ichkeul, Tunis.

206. Mare aux Hippopotames and Mare d'Oursi, Burk. Faso; Sakumo Lagoon, Songor Lagoon and Anlo-Keta Lagoon, Ghana; Niger Source, Guinea; Lake Naivasha, Kenya; Walvis Bay, Namib.; Zone Humide du Moyen Niger, Niger; Port Launay, Sey.; and Ichkeul, Tunis.

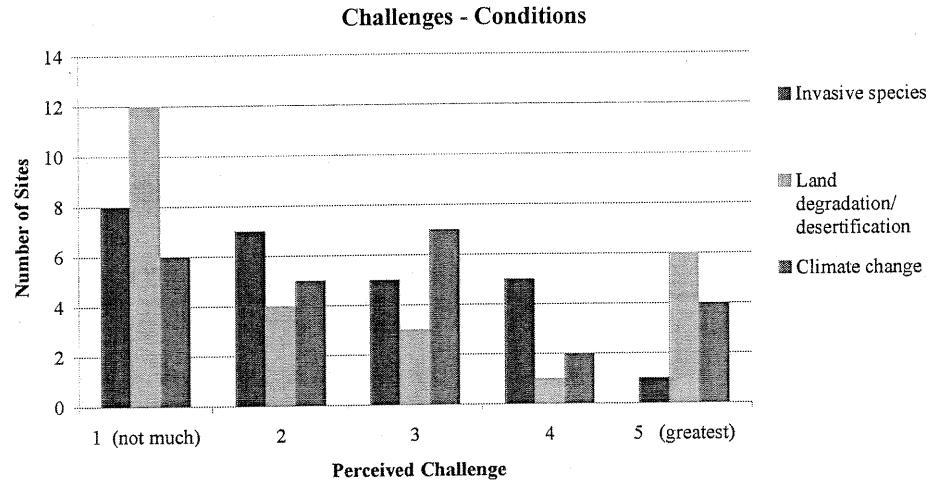
207. Okavango Delta, Bots.; Niger Source, Guinea; Lake Naivasha, Kenya; Djoudj, Sen.; Port Launay, Sey.; Ichkeul, Tunis.; and Kafue Flats Wetlands, Zambia.

208. Basse Vallée de l'Ouémé Lagune de Porto-Novo Lac Nokoué, Benin; Okavango Delta, Bots.; Muni Lagoon, Sakumo Lagoon, Songor Lagoon and Anlo-Keta Lagoon, Ghana; Lake Naivasha, Kenya; and Delta Intérieur du Niger, Mali.

209. Kolberg, *supra* note 168, question 46. For historical background on the legal status of Walvis Bay, see generally LYNN BERAT, WALVIS BAY: DECOLONIZATION AND INTERNATIONAL LAW (1990).

210. Kolberg, *supra* note 168, question 46.

FIGURE 7.



reserve have thus far been unsuccessful, and accordingly “the area is under constant threat of development (hotels, marinas, etc.).”²¹¹ In a similar vein, the respondent for Lake Naivasha observed that the site is partly owned by private persons and multinational companies and that it is “difficult to regulate” activities on such lands.²¹²

Overexploitation or overuse of resources, both legal and illegal, was also reported to be a significant challenge. Eight (31%) of the respondents reported that trespassers and/or poachers posed the greatest or second-greatest challenge.²¹³ Some sites, such as Mare aux Hippopotames, use local stakeholders in anti-poaching efforts.²¹⁴ Four listed visitor impacts as the greatest or second-greatest challenge.²¹⁵ The respondent for the Okavango Delta noted that too many uncoordinated research projects were also an issue.²¹⁶

To a slightly lesser degree, seven respondents identified land degradation/desertification²¹⁷ and six listed climate change as the greatest or second-greatest

211. *Id.*

212. Omengo, *supra* note 151, question 13.

213. Okavango Delta, Bots.; Mare aux Hippopotames and Mare d'Oursi, Burk. Faso; La Réserve Communautaire du Lac Tété/Likouala-aux-Herbes, Congo; Parc National d'Azagny and N'Ganda N'Ganda, Côte d'Ivoire; and Bangweulu Swamps and Kafue Flats Wetlands, Zambia.

214. Namoano, La Mare aux Hippopotames, *supra* note 98, at question 30; *See also* Jallow, *supra* note 124, question 28 (Gambia created Site Management and Resource Protection Committee from intruders or poachers).

215. Réserve Naturelle du Lac de Réghaïa, Alg.; Okavango Delta, Bots.; Niger Source, Guinea; and Walvis Bay, Namib.

216. Segomelo, *supra* note 92, question 12.

217. Mare aux Hippopotames and Mare d'Oursi, Burk. Faso; Sakumo Lagoon and Anlo-Keta Lagoon, Ghana; Niger Source, Guinea; Delta Intérieur du Niger, Mali; and Zone Humide du Moyen Niger, Niger.

challenge.²¹⁸ The problem of invasive species was found to be an important issue for six sites.²¹⁹ The graphs below provide a summary of the responses.

IV. PUBLIC IDENTIFICATION AND EFFECT OF RAMSAR DESIGNATION

The portion of the survey that focused exclusively on the Ramsar Convention inquired about two primary areas. The first was how, if at all, efforts were made to publicize the Ramsar status of the sites. The second was whether the designation provided any benefits or caused any problems. As explained below, the site managers have adopted various approaches with respect to identifying their sites as Wetlands of International Importance. The type and level of benefits associated with Ramsar designation also differed from site to site. One theme, however, was clear: Ramsar designation is more than simply an award; it provides tangible benefits to the sites and the people who depend upon them.

A. PUBLIC IDENTIFICATION WITH RAMSAR

There are numerous ways that a country can identify a site's recognition as a Wetland of International Importance. The survey asked respondents about several of these, including signage at or near site entrances, outdoor interpretive signs or displays, certificates, exhibits and/or posters in visitor centers, and brochures and publications. Almost all the sites surveyed were the subject of at least one method for publicizing their Ramsar status.²²⁰ However, virtually every respondent also suggested that Ramsar designation should be better promoted.

The use of Ramsar signs, displays, and exhibits varied widely. Only eight of the respondents reported that their sites had a Ramsar sign or display at or near the site entrance.²²¹ Nine respondents noted that their sites had a Ramsar logo or information on an outdoor sign elsewhere (including four of the sites with a Ramsar entrance sign).²²² Ramsar signs, displays, exhibits, and/or posters are more commonly found in visitor centers, with eleven respondents stating that

218. Basse Vallée de l'Ouémé Lagune de Porto-Novo Lac Nokoué, Benin; Okavango Delta, Bots.; Mare d'Oursi, Burk. Faso; Delta Intérieur du Niger, Mali; Zone Humide du Moyen Niger, Níger; and Port Launay, Sey.

219. Mare aux Hippopotames and Mare d'Oursi, Burk. Faso; Lake Naivasha, Kenya; Zone Humide du Moyen Niger, Níger; Djoudj, Sen.; and Kafue Flats Wetlands, Zambia.

220. The sites that did not indicate one of these methods of publicity are N'Ganda N'Ganda, Côte d'Ivoire; Songor Lagoon, Ghana; Port Launay, Seychelles; and Bangweulu, Zambia. At the time of the survey Port Launay stated that it was putting up a sign on World Wetlands Day 2008. Murugaiyan, *supra* note 185, question 15.

221. Réserve Naturelle du Lac de Réghaïa, Alg.; Okavango Delta, Bots.; Mare d'Oursi, Burk. Faso; Muni Lagoon, Ghana; Parc National du Banc d'Arguin, Parc National du Diawling, and Chat Tboul, Mauritania; and Djoudj, Sen.

222. Réserve Naturelle du Lac de Réghaïa, Alg.; Okavango Delta, Bots.; Mare d'Oursi, Burk. Faso; La Réserve Communautaire du Lac Télé/Likouala-aux-Herbes, Congo; Sakumo Lagoon and Anlo-Keta Lagoon, Ghana; Parc National du Banc d'Arguin, Parc National du Diawling, and Chat Tboul, Mauritania.

their sites employ one or more of these techniques.²²³ Brochures, pamphlets, and leaflets are also a popular means to highlight a site's Ramsar connection; eighteen sites have these publications available for visitors.²²⁴

Some respondents also pointed out that Ramsar designation is emphasized during particular events. For example, the respondent for Réserve Naturelle du Lac de Réghaïa (Algeria) reported that items such as Ramsar folders, stickers, posters, and ribbons are distributed for World Wetlands Day, World Tree Day, and Environment Day.²²⁵ In Niger, the respondent for the Zone Humide du Moyen Niger noted that participants in annual fishing festivals and shows are informed about the site's Ramsar status.²²⁶ The Ramsar status of the sites in Burkina Faso is also mentioned in debriefings and activity reports.²²⁷

Interestingly, the respondents were almost unanimous in their belief that their Ramsar designations should be better promoted.²²⁸ Several suggested that increasing the visibility of the Ramsar Convention would lead to greater environmental awareness and assist with environmental education.²²⁹ Some respondents believed that greater emphasis on Ramsar could lead to better site management.²³⁰ The respondent for Sakumo Lagoon (Ghana), an urban site, noted the connection between increased environmental awareness and site protection. Stating that "[a]lmost all the urban wetlands in Ghana are highly polluted and continue to be mismanaged,"²³¹ he observed that Ramsar designation has improved public awareness about the value of wetlands and has helped reduce "the common perception among the people that wetlands are 'wastelands' and 'breeding grounds for mosquitoes.'" ²³² He suggested that if the site, located in the national capital, was better promoted and managed, it could "serve as [a] show piece . . . for managing wetlands in Ghana."²³³

223. Réserve Naturelle du Lac de Réghaïa, Alg.; Basse Vallée de l'Ouémé Lagune de Porto-Novo Lac Nokoué, Benin; Okavango Delta, Bots.; Mare d'Oursi, Burk. Faso; Parc National d'Azagny, Côte d'Ivoire; Baobolon Wetland Reserve, Gambia; Sakumo Lagoon and Anlo-Keta Lagoon, Ghana; Niger Source, Guinea; Lake Naivasha, Kenya; and Delta Intérieur du Niger, Mali.

224. Réserve Naturelle du Lac de Réghaïa, Alg.; Okavango Delta, Bots.; Mare aux Hippopotames and Mare d'Oursi, Burk. Faso; N'Ganda N'Ganda, Côte d'Ivoire; Muni Lagoon, Sakumo Lagoon and Anlo-Keta Lagoon, Ghana; Niger Source, Guinea; Lake Naivasha, Kenya; Delta Intérieur du Niger, Mali; Parc National du Banc d'Arguin, Parc National du Diawling and Chat Tboul, Mauritanie; Walvis Bay, Namib.; Zone Humide du Moyen Niger, Niger; Ichkeul, Tunis.; and Kafue Flats Wetlands, Zambia.

225. Noul, *supra* note 80, question 17.

226. Issa, *supra* note 176, question 17.

227. Namoano, La Mare aux Hippopotamès, *supra* note 98, question 17; Namoano, La Mare d'Oursi, *supra* note 101, question 17.

228. All except Delta Intérieur du Niger, Mali.

229. Okavango Delta, Bots.; La Réserve Communautaire du Lac Tété/Likouala-aux-Herbes, Congo; Muni Lagoon and Sakumo Lagoon, Ghana; Lake Naivasha, Kenya; Walvis Bay, Namib.; and Kafue Flats Wetlands, Zambia.

230. Muni Lagoon and Sakumo Lagoon, Ghana.

231. Amankwah, *supra* note 129, question 20.

232. *Id.*

233. *Id.*

Several respondents also stated that better promotion of a site's Ramsar status could increase the benefits associated with Ramsar designation. For example, the respondent for Port Launay noted that Seychelles is an island state dependent on tourism and that promoting the site's Ramsar status internationally would provide economic benefits.²³⁴ In a similar vein, the respondent for the Kafue Flats Wetlands in Zambia recommended "[m]ore public awareness campaigns to promote wise use and to explain the benefits of [Ramsar designation] to the local communities."²³⁵ The next section examines the survey results with respect to the benefits (and problems) attributable to Ramsar designation.

B. BENEFITS OF RAMSAR DESIGNATION

All the sites have a conservation status in addition to their Ramsar designations (e.g., Important Bird Area, National Park, National Wildlife Refuge or Reserve, World Heritage Site). The survey asked whether Ramsar designation had contributed additional benefits in several specific areas. While it can be difficult to quantify some benefits, the survey data demonstrate that Ramsar designation can and does provide value to the sites and local communities. In particular, Ramsar designation has been instrumental in providing increased support for protection and management of the sites, scientific studies, funding opportunities, tourism, and poverty alleviation.

1. Increased Support for Protection and Management of the Sites

In several cases, respondents gave Ramsar designation credit for protecting the sites from threats that would degrade the ecosystem services they provide.²³⁶ Half of the respondents (thirteen) reported that Ramsar designation resulted in changes in site management or land-use practices.²³⁷ For example, the respondent for Sakumo Lagoon in Ghana stated that prior to designation, the local government had zoned the area as a light industrial site, which would have permitted activities such as brick manufacturing. Once the site achieved Ramsar status, the city modified its land-use plan and the lagoon was spared.²³⁸ Another respondent from Ghana reported that the designation for Songor Lagoon reduced degradation of ecologically sensitive areas, minimizing the conversion of sensi-

234. Murugaiyan, *supra* note 185, question 20.

235. Shanungu, *supra* note 199, question 20.

236. La Réserve Communautaire du Lac Télé/Likouala-aux-Herbes, Congo; Baobolon Wetland Reserve, Gambia; Sakumo Lagoon, Ghana; and Lake Naivasha, Kenya.

237. Réserve Naturelle du Lac de Réghaïa, Alg.; Basse Vallée de l'Ouémé Lagune de Porto-Novo Lac Nokoué, Benin; Mare d'Oursi, Burk. Faso; Sakumo Lagoon and Songor Lagoon, Ghana; Niger Source, Guinea; N'Ganda N'Ganda, Côte d'Ivoire; Delta Intérieur du Niger, Niger; Parc National du Banc d'Arguin, Parc National du Diawling and Chat Tboul, Mauritania; Zone Humide du Moyen Niger, Niger; and Port Launay, Sey.

238. Amankwah, *supra* note 129, question 22.

tive habitat to agricultural production.²³⁹ The respondent for Port Launay noted a similar effect of designation, observing that applications for development projects were now subject to a more restrictive environmental impact assessment process.²⁴⁰ Although the Ramsar Convention is non-regulatory, a site's Ramsar status can be invoked in a domestic regulatory decision-making process.

Several respondents also emphasized that Ramsar designation led to the development of management plans (or more rigorous management plans) for the sites.²⁴¹ Stakeholder participation in the management of the sites is common, as twenty-one (81%) respondents noted.²⁴² Moreover, the international designation was reported to increase the local community's interest at fifteen sites.²⁴³

The increased interest by local communities can result in stronger protection of a site's ecological integrity in different ways. As a consequence of Ramsar designation, several respondents stated that the community had established patrols to reduce trespassing and poaching.²⁴⁴ Others reported that the designation had led to a change in behavior by the site's users. In Benin, for example, the respondent noted that people were now paying more attention to the management of waste and that the mangroves were no longer cut.²⁴⁵ Similarly, the respondent for Sakumo Lagoon noted that the Ramsar designation led people to be more careful about illegal activities such as sand winning and the dumping of refuse.²⁴⁶ In total, sixteen respondents concluded that Ramsar designation had led to increased support for protection of the site and surrounding areas.²⁴⁷

239. Agyeman, *supra* note 135, question 22.

240. Murugaiyan, *supra* note 185, question 22.

241. Okavango Delta, Bots.; Mare d'Oursi, Burk. Faso; Songor Lagoon, Ghana; Niger Source, Guinea; Parc National du Banc d'Arguin, Parc National du Diawling and Chat Tboul, Mauritania and Port Launay, Sey.

242. Basse Vallée de l'Ouémé Lagune de Porto-Novo Lac Nokoué, Benin; Okavango Delta, Bots.; Mare aux Hippopotames and Mare d'Oursi, Burk. Faso; La Réserve Communautaire du Lac Télé/Likouala-aux-Herbes, Congo; Baobolon Wetland Reserve, Gambia; Muni Lagoon, Sakumo Lagoon, Songor Lagoon and Anlo-Keta Lagoon, Ghana; Niger Source, Guinea; Lake Naivasha, Kenya; Delta Intérieur du Niger, Mali; Parc National du Banc d'Arguin, Parc National du Diawling and Chat Tboul, Mauritania; Zone Humide du Moyen Niger, Niger; Djoudj, Sen.; Port Launay, Sey.; and Bangweulu Swamps and Kafue Flats Wetlands, Zambia.

243. Réserve Naturelle du Lac de Réghaïa, Alg.; Basse Vallée de l'Ouémé Lagune de Porto-Novo Lac Nokoué, Benin; Mare d'Oursi, Burk. Faso; Baobolon Wetland Reserve, Gambia; Muni Lagoon, Sakumo Lagoon, Songor Lagoon and Anlo-Keta Lagoon, Ghana; Niger Source, Guinea; Delta Intérieur du Niger, Mali; Parc National du Banc d'Arguin, Parc National du Diawling and Chat Tboul, Mauritania; Zone Humide du Moyen Niger, Niger; and Djoudj, Sen.

244. Anlo-Keta Lagoon, Ghana; Baobolon Wetland Reserve, Gambia and Parc National d'Azagny, Côte d'Ivoire.

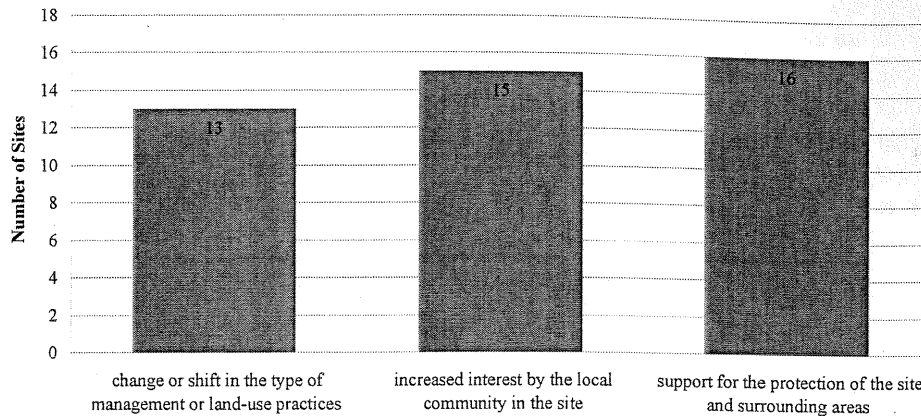
245. Dagba, *supra* note 85, questions 22, 32.

246. Amankwah, *supra* note 129, question 32. Sand winning refers to "the practise of sand collection from open landscapes for sale to people in the construction industry." JOHN ERNEST KOKU, ENVIRONMENT, LIVELIHOOD AND NATURAL RESOURCE MANAGEMENT IN THE LOWER VOLTA BASIN OF GHANA 16, n.9 (2002).

247. Réserve Naturelle du Lac de Réghaïa, Alg.; Basse Vallée de l'Ouémé Lagune de Porto-Novo Lac Nokoué, Benin; Okavango Delta, Bots.; Mare d'Oursi, Burk. Faso; La Réserve Communautaire du Lac Télé/Likouala-aux-Herbes, Congo; Parc National d'Azagny, Côte d'Ivoire; Muni Lagoon, Sakumo Lagoon, Songor Lagoon and Anlo-Keta Lagoon, Ghana; Niger Source, Guinea; Lake Naivasha, Kenya; Delta Intérieur du Niger, Mali; Zone Humide du Moyen Niger, Niger; Port Launay, Sey.; and Kafue Flats Wetlands, Zambia.

FIGURE 8.

Increased Support



Two other examples of benefits are noteworthy in this regard, both of which can relate to higher-level decisionmakers. The respondent for Lake Naivasha in Kenya stated that Ramsar designation has helped with restoration initiatives,²⁴⁸ while the respondent for Bangweulu Swamps in Zambia observed that it has assisted environmental groups in lobbying and educating government officials about the value of the site.²⁴⁹ Effectively protecting a Ramsar site often requires the support of local communities as well as the support of organizations and government officials.

2. Increased Scientific Studies

The survey also asked whether Ramsar designation had led to increased scientific interest in and studies of the site. Twenty-one (81%) respondents replied that it had, offering numerous examples.²⁵⁰ Most of the studies focused on animal species, such as fish, reptiles, waterbirds, and large mammals in the Congo's La Réserve Communautaire du Lac Télé/Likouala-aux-Herbes,²⁵¹ and waterbirds, manatees, chimpanzees, and elephants in Côte d'Ivoire's Parc National d'Azagny.²⁵² Others, such as the Delta Intérieur du Niger in Mali, included hydrology studies.²⁵³ The researchers ranged from university students (as re-

248. Omengo, *supra* note 151, question 39.

249. Chansa, *supra* note 194, question 39.

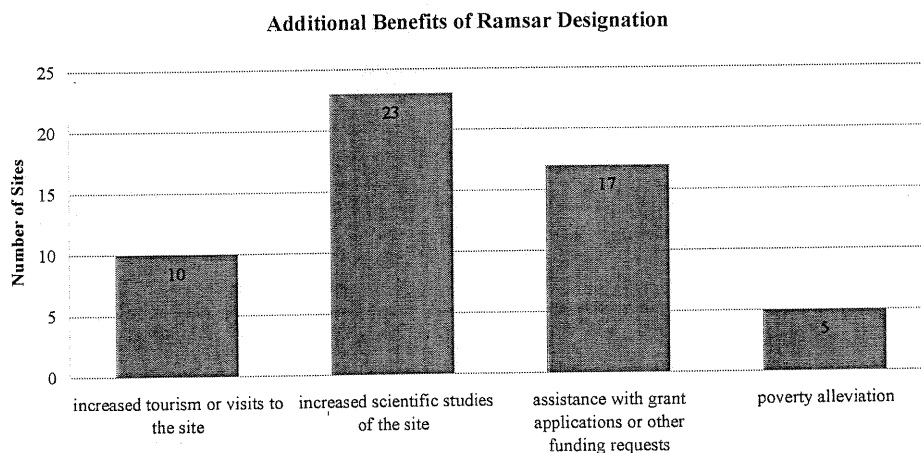
250. The respondents from Walvis Bay, Namibia, and Port Launay, Seychelles, answered no, while the respondent from Okavango Delta, Botswana, did not know.

251. Madouka, *supra* note 107, question 34.

252. Bomisso, *supra* note 116, question 34.

253. Timbo, *supra* note 157, question 34.

FIGURE 9.



ported from Muni Lagoon in Ghana)²⁵⁴ to various non-governmental organizations (as reported from the Delta Intérieur du Niger).²⁵⁵ As we noted in the report on U.S. Ramsar sites, the scientific data “should likely reinforce the other benefits offered by Ramsar designation. Increased knowledge should help educate the public and decisionmakers about the importance of a site, thus leading to increased support for its protection.”²⁵⁶

3. Increased Funding Opportunities

Seventeen respondents stated that Ramsar designation had assisted with grant applications and other funding opportunities.²⁵⁷ The respondent for Réserve Naturelle du Lac de Réghaïa in Algeria emphasized that Ramsar designation had “absolutely” assisted the site, “be it at the international level for the financing of studies and the implementation of the management plan or be it at the local level for the financing of conservation and development programs.”²⁵⁸ Several sites pointed out that they were beneficiaries of the Ramsar Small Grants Fund, administered by the Ramsar Secretariat.²⁵⁹ For example, the respondent for

254. Adamu, *supra* note 126, question 34.

255. Timbo, *supra* note 157, question 34.

256. Gardner & Connolly, *supra* note 12, at 10097.

257. Réserve Naturelle du Lac de Réghaïa, Alg.; Basse Vallée de l'Ouémé Lagune de Porto-Novo Lac Nokoué, Benin; Mare d'Oursi, Burk. Faso; La Réserve Communautaire du Lac Télé/Likouala-aux-Herbes, Congo; Baobolon Wetland Reserve, Gambia; Songor Lagoon, Ghana; Niger Source, Guinea; Lake Naivasha, Kenya; Delta Intérieur du Niger, Mali; Parc National du Banc d'Arguin, Parc National du Diawling and Chat T Boul, Mauritania; Walvis Bay, Namib.; Djoudj, Sen.; and Ichkeul, Tunis.

258. Noual, *supra* 80, question 36.

259. La Réserve Communautaire du Lac Télé/Likouala-aux-Herbes, Congo; Baobolon Wetland Reserve, Gambia; Songor Lagoon, Ghana; Lake Naivasha, Kenya; and Walvis Bay, Namib. The Ramsar Small Grants

Baobolon Wetland Reserve in Gambia reported that a Ramsar grant had been used for site assessment and a management plan.²⁶⁰ Others noted the contributions of non-governmental organizations. The World Wide Fund for Nature was a source of funding, as reported by the respondents for the Niger Source in Guinea and Kafue Flats Wetlands Reserve in Zambia.²⁶¹ Similarly, Congo's La Réserve Communautaire du Lac Télé/Likouala-aux-Herbes has benefited through funding from Wetlands International.²⁶² The European Union and the Kingdom of the Netherlands were also identified as funding sources for Ramsar sites by, respectively, Tunisia's Ichkeul and Mali's Delta Intérieur du Niger.²⁶³

4. Increased Ecotourism

Ten respondents identified increased tourism as a benefit of Ramsar designation.²⁶⁴ For example, the respondent for Côte d'Ivoire's Parc National d'Azagny stated that "[t]he communication of the site's Ramsar designation/status has enhanced its importance in the network of national parks and similar reserves for national and international tourism."²⁶⁵ In particular, respondents for several sites reported an increase in birdwatching activities, such as Burkina Faso's Mare d'Oursi, Kenya's Lake Naivasha, Mali's Delta Intérieur du Niger, and Zambia's Kafue Flats Wetlands Reserve. At other sites, such as the relatively recently designated Port Launay in the Seychelles, where a boardwalk and information center are being constructed, the development of an ecotourism industry is anticipated soon.²⁶⁶

5. Poverty Alleviation

Poverty alleviation has taken on increasing importance within the Ramsar community.²⁶⁷ Five respondents reported that Ramsar designation had assisted with poverty alleviation.²⁶⁸ For example, at Songor Lagoon in Ghana local

Fund is maintained through voluntary contributions. *Ramsar Manual*, *supra* note 16, at 74. Applications are evaluated by the Ramsar Secretariat, Scientific and Technical Review Panel, international organization partners, and other experts; the Standing Committee makes the final determination for grant awards. *Id.* at 74-75.

260. Jallow, *supra* note 124, questions 35-36.

261. Balde, *supra* note 146, question 36; Shanungu, *supra* note 199, question 36.

262. Madouka, *supra* note 107, question 24.

263. Ayache, *supra* note 192, question 36; Timbo, *supra* note 157, question 36.

264. Réserve Naturelle du Lac de Réghaïa, Alg.; Mare d'Oursi, Burk. Faso; Parc National d'Azagny, Côte d'Ivoire; Muni Lagoon and Songor Lagoon, Ghana; Lake Naivasha, Kenya; Delta Intérieur du Niger, Mali; Djoudj, Sen.; Ichkeul, Tunis.; and Kafue Flats Wetlands, Zambia.

265. Bomisso, *supra* note 116, question 26.

266. Murugaiyan, *supra* note 185, question 26.

267. Convention on Wetlands, 9th Conference of the Parties to the Convention on Wetlands, Kampala, Uganda, Nov. 8-15, 2005, *Resolution IX.14: Wetlands and Poverty Reduction* (Dec. 8, 2005), available at http://www.ramsar.org/res/key_res_ix_14_e.htm.

268. Okavango Delta, Bots.; Songor Lagoon, Ghana; Lake Naivasha, Kenya; Delta Intérieur du Niger, Mali;

groups received micro-credit funding to promote sustainable activities.²⁶⁹ Similarly, at Lake Naivasha in Kenya, the respondent noted that increased tourism, which had helped the local economy, had a poverty alleviation component.²⁷⁰ The respondent for the Okavango Delta pointed out that its management plan included pilot projects designed to “improve livelihoods of local communities” and that these efforts are “now showing positive results towards poverty alleviation.”²⁷¹ In particular, the pilot projects helped reduce human-elephant conflict.²⁷²

6. Problems Associated with Ramsar Designation

Only two respondents (Songor Lagoon in Ghana and Ichkeul in Tunisia) expressly reported that Ramsar designation had caused any problems, and both related to conflicts over resource use at the sites.²⁷³ The most detail was provided by the respondent for Ichkeul. He observed that the creation of a national park for bird conservation was not popular with some local people as the protected status precluded grazing on the marshes, quarrying (a source of employment), and bathing in the hot springs.²⁷⁴ While the designation of the site as a national park predates its Ramsar designation, this situation underscores the fact that some local people may on occasion perceive Ramsar designation (and other protected status) as interfering with their livelihoods.

V. RECOMMENDATIONS TO STRENGTHEN THE RAMSAR CONVENTION IN AFRICA

Increasing the effectiveness of the Ramsar Convention in Africa will require action at multiple levels, from local stakeholders to the Ramsar Secretariat. Because Africa is a tremendously diverse continent, our recommendations are by necessity relatively general. Yet they are also mutually reinforcing, and if implemented in a holistic fashion, should expand the benefits that flow from Ramsar designation. As detailed below, we have five suggestions, which relevant authorities or managers at some sites have already adopted. Indeed, one of the functions of the survey is to identify successful programs and activities at one or

and Djoudj, Sen.

269. Agyeman, *supra* note 135, question 38. The micro-credit beneficiaries, who engaged in farming, fishing, and kenkey production, participated in habitat restoration and wildlife protection activities.

270. Omengo, *supra* note 151, question 38.

271. Segomelo, *supra* note 92, question 36.

272. *Id.* See also Francine M. Madden, *The Growing Conflict Between Humans and Wildlife: Law and Policy as Contributing and Mitigating Factors*, 11 J. INT'L WILDLIFE L. & POL'Y 189, 192-93 (2008) (discussing human-wildlife conflict in Bwindi Impenetrable Forest National Park, Uganda).

273. Although the respondent for Sakumo Lagoon in Ghana did not state that Ramsar designation had caused problems, he did note that ownership of the site is in dispute. The government originally acquired the site in 1952 for a harbor project. Because the project was never completed, the traditional land owners are reasserting their claims. Amankwah, *supra* note 129, question 13.

274. Ayache, *supra* note 192, question 41.

several sites for possible use or expansion at other sites. With that in mind, the suggestions are to: better promote Ramsar designation; improve support of management plans; make the linkage between wetland conservation and poverty alleviation; strengthen the development of ecotourism; and enlist local stakeholders in the protection of the site.

- Better promotion of Ramsar designation. The respondents were almost unanimous in their view that public awareness of, and appreciation for, Ramsar designation should be strengthened. One way to accomplish this is through World Wetlands Day (February 2), which commemorates the conclusion of the Convention in 1971.²⁷⁵ Several respondents highlighted how they use World Wetlands Day activities and other events to promote Ramsar and the importance of wetland conservation.²⁷⁶ In fact, respondents for sixteen sites identified World Wetlands Day as among the most effective or second-most effective Ramsar-related tool.²⁷⁷ But while World Wetlands Day is an important resource in this regard, it happens only once a year. We advocate going beyond the World Wetlands Day celebration. The Ramsar Secretariat and the Parties should work toward central availability of adaptable, more permanent mechanisms to explain at the local and national levels the importance of wetlands and the ecosystem services that they provide when properly managed. This could be done through the National Ramsar Committees where they exist with the participation of other key stakeholders with a major media and Communication, Education, Participation and Awareness (CEPA)²⁷⁸ component in local languages. We should reach a stage where the status of a Ramsar site would garner as much recognition and media attention as a natural World Heritage Site.²⁷⁹
- More support for management plans. Although the local community may appreciate the value of a Ramsar site and its ecosystem services, the site

275. Ramsar Secretariat, World Wetlands Day, 2 February, http://www.ramsar.org/wwd/wwd_index.htm (last visited Oct. 26, 2008) (providing background on World Wetlands Day); Ramsar Secretariat, World Wetlands Day 2008 – reports page, http://www.ramsar.org/wwd/8/wwd2008_reports.htm (last visited Oct. 28, 2008) (describing most recent World Wetlands Day activities).

276. Réserve Naturelle du Lac de Réghaïa, Alg.; Parc National d'Azagny, Côte d'Ivoire; and Delta Intérieur du Niger, Mali.

277. Réserve Naturelle du Lac de Réghaïa, Alg.; Basse Vallée de l'Ouémé Lagune de Porto-Novo Lac Nokoué, Benin; Okavango Delta, Bots.; La Réserve Communautaire du Lac Télé/Likouala-aux-Herbes, Congo; Baobolon Wetland Reserve, Gambia; Muni Lagoon, Sakumo Lagoon, Songor Lagoon and Anlo-Keta Lagoon, Ghana; Niger Source, Guinea; Lake Naivasha, Kenya; Parc National du Banc d'Arguin, Parc National du Diawling and Chat Tboul, Mauritania; Djoudj, Sen.; and Kafue Flats Wetlands, Zambia.

278. See generally Ramsar Secretariat, The Convention's CEPA Programme: Developing Communication, Education and Public Awareness (CEPA) as a Powerful Tool for the Conservation and Wise Use of Wetlands, http://www.ramsar.org/outreach_index.htm (last visited Dec. 12, 2008). Prior to COP10, CEPA stood for communication, education, and public awareness. It now means communication, education, participation, and awareness. Convention on Wetlands, 10th Meeting of the Parties to the Convention on Wetlands, Changwon, S. Korea, Oct. 28-Nov. 4, 2008, *Resolution X.8: The Convention's Programme on Communication, Education, Participation and Awareness (CEPA) 2009-2015*, available at http://www.ramsar.org/res/key_res_x_08_e.pdf.

279. See UNESCO, World Heritage, <http://whc.unesco.org/en/about> (last visited Oct. 28, 2008).

should have a properly implemented management plan if it is to continue to provide those services. Twelve respondents reported that a management plan was the most or second-most effective Ramsar-related tool.²⁸⁰ Some respondents lamented the lack of a formal management plan or its implementation.²⁸¹ One challenge is financial. The Ramsar Small Grants Fund has been used,²⁸² and should continue to be used, to assist Ramsar site authorities with the development of management plans. Site managers should also explore other possible funding mechanisms such as the private sector in countries where Ramsar wetlands have helped with ecotourism development or poverty reduction. Moreover, the Kyoto Protocol's Clean Development Mechanism may provide a means to pay for a management plan, especially if reforestation is a component.²⁸³ Another Kyoto-related possibility, albeit less developed, is the concept of Reducing Emissions from Deforestation and Degradation (REDD), under which developing countries would receive payments for sustainable management of forested areas, including wetlands.²⁸⁴

To encourage the development of management plans (not just in Africa), the Parties should consider linking the designation process with the preparation of a proper management plan. Under such an approach, without a management plan, a candidate site would not be listed. Ramsar Handbook 16,²⁸⁵ which provides a framework for managing Wetlands of International Importance and other wetland sites, must be promoted in the region and made available to all site managers (those currently designated and those under consideration).

- Emphasis on the linkage between wetland conservation and poverty alleviation. The success of a management plan will depend, in part, on the extent to which it incorporates a poverty alleviation component. Africa is the only region in the world where poverty is increasing.²⁸⁶ Accordingly, it is important that actions towards the conservation of wetlands contribute to

280. Réserve Naturelle du Lac de Réghaïa, Alg.; Okavango Delta, Bots.; Mare aux Hippopotames and Mare d'Oursi, Burk. Faso; Baobolon Wetland Reserve, Gambia; Sakumo Lagoon, Songor Lagoon and Anlo-Keta Lagoon, Ghana; Niger Source, Guinea; and Parc National du Banc d'Arguin, Parc National du Diawling, and Chat T Boul, Mauritania.

281. Lake Naivasha, Kenya; and N'Ganda N'Ganda, Côte d'Ivoire.

282. See, e.g., Jallow, *supra* note 124, questions 35-36.

283. See Gardner, *supra* note 38, at 585-587 (discussing how the carbon sequestration function of wetlands may be a means to receive credit for restoration).

284. See THE FORESTS DIALOGUE, BEYOND REDD: THE ROLE OF FORESTS IN CLIMATE CHANGE (Alastair Sarre & Gary Dunning eds., 2008), available at http://research.yale.edu/gisf/tfd/climate_stakeholder.html; see also ENVTL. DEFENSE, COMPENSATED REDUCTION: A POSITIVE INCENTIVE FOR TACKLING THE LARGEST SOURCE OF GREENHOUSE GAS EMISSIONS IN THE DEVELOPING WORLD (2006), available at http://www.edf.org/documents/4875_CompensatedReduction_Overview.pdf.

285. Ramsar Secretariat, *Managing Wetlands: Frameworks for Managing Wetlands of International Importance and Other Wetland Sites* (3rd ed. 2007), available at http://www.ramsar.org/lib/lib_handbooks2006_e16.pdf.

286. U.N. Dev. Programme, *Human Development Report 2007/2008, Fighting Climate Change: Human Solidarity in a Divided World* 238-40 (2007), available at <http://hdr.undp.org/en/reports/global/hdr2007-2008>.

improving the livelihoods of local communities that rely on the wetlands' resources for their survival. If people believe that wetland conservation efforts come at the expense of their livelihoods, they are not likely to embrace the Ramsar designation. Education and public awareness efforts (such as, but not limited to, World Wetlands Day) can help local stakeholders understand that a Ramsar site can be a renewable economic resource, by providing fish and game, fresh water, fuel, medicines, and construction material—but only if the site is properly managed with the support of the local community.

- Development of environmentally sustainable tourism. As several sites have demonstrated, ecotourism can contribute to poverty alleviation.²⁸⁷ If the ecological significance of the designated Ramsar sites is better promoted outside Africa, ecotourism should increase.²⁸⁸ The contribution of ecotourism to the local economy can serve as a counterweight to development pressures, which were identified as one of the major challenges associated with African Ramsar sites. Of course, like any use of a Ramsar site, ecotourism must be properly managed. The Ramsar Secretariat in conjunction with its International Organization Partners²⁸⁹ should develop a strategy to assist Parties and the sites along these lines.
- Enlist local stakeholders in protection of Ramsar sites. As several respondents noted, local people become much more protective of a Ramsar site once they are aware of the ecosystem services that it provides.²⁹⁰ Indeed, it is in their own self-interest to protect the site from trespassers, poachers, and polluters.²⁹¹ When developing or revising a management plan for a Ramsar site, site managers should consider how to incorporate these local enforcement mechanisms, even on an informal basis.

Moreover, site managers should include local university and other academic specialists as interested stakeholders. Ramsar sites have been and will continue to be the subject of scientific and other studies. Site managers should find natural allies (who may bring their own source of funding) by collaborating with the educational community.

Finally, urban wetlands should not be forgotten in this calculus. These Ramsar (and non-Ramsar) sites usually have an impressive concentration of people who live in close proximity. Accordingly, this is where the Ramsar Convention can make the greatest difference by reaching the widest audience to promote the wise-use concept. Sometimes a jewel needs to be cleaned and polished before

287. Réserve Naturelle du Lac de Réghaïa, Alg.; Sakumo Lagoon, Ghana; and Lake Naivasha, Kenya.

288. For example, SouthAfrica.info is an excellent website for travelers considering visiting Africa and could be a means for advertising Ramsar's spectacular sites and why they are unique. See SouthAfrica.info, *supra* note 2.

289. *Ramsar Manual*, *supra* note 16, at 45.

290. Notably: Basse Vallée de l'Ouémé Lagune de Porto-Novo Lac Nokoué, Benin; Okavango Delta, Bots.; Mare aux Hippopotames and Mare d'Oursi, Burk. Faso; Baobolon Wetland Reserve, Gambia; Muni Lagoon, Sakumo Lagoon, Songor Lagoon and Anlo-Keta Lagoon, Ghana; and Port Launay, Sey.

291. Baobolon Wetland Reserve, Gambia; and Sakumo Lagoon, Ghana.

one can appreciate its beauty and value.

VI. CONCLUSION

As of December 2008, African nations had designated more than 280 sites as Wetlands of International Importance under the Ramsar Convention, and more African sites are in the application process. This Article discussed the impact that Ramsar designation has had on a broad sampling of surveyed sites throughout African nations. As the survey results make clear, designation provides varied but important benefits. As the world increasingly recognizes the importance of the ecosystem services that wetlands provide, it is helpful to understand how the Ramsar Convention can support the functions and values of these wetland jewels in the African region and elsewhere on the planet.