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ABSTRACT

The International Union for Nature Conservation has made considerable efforts to bring sustainable Integrated Water Resources Management into practice through its Water and Nature Initiative. In doing so it faced major challenges such as institutional shortcomings, underdevelopment of the civil society, and a lack of participation. In this paper we review the experiences of the International Union for Nature Conservation with the Water and Nature Initiative in the Senegal River Basin. Findings indicate the International Union for Nature Conservation was able to open new spaces for sustainable IWRM by cautiously lobbying at high administrative levels combined with community work on the ground.

I. INTRODUCTION

Integrated Water Resources Management (IWRM) is a well-known response to the global water crisis in contemporary water management.² IWRM is defined as “a process which promotes the co-oriented development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of

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1. An earlier draft of this paper was presented at the workshop Water Policy Dynamics in State-Centric Regimes organized by the Center for Development Research at the University of Bonn (March 24–25, 2009). We would like to thank all our reviewers for their comments on earlier drafts. Special thanks go to Jean-Marc Garreau, Matar Diouf of IUCN West-Africa and Mark Smith of the IUCN Headquarters for providing essential information. Finally we are grateful to María Augusta León Moreta of the IUCN Environmental Law Centre for the helpful comments and suggestions.

2. U.N. Dep't of Econ. & Soc. Affairs, *Integrated Water Resources Management*, WATER FOR LIVE DECADE, <http://www.un.org/waterforlifedecade/iwrm.shtml>, (“Most developed countries have in large measure, artificially overcome natural variability [of water availability] by supply-side infrastructure to assure reliable supply and reduce risks, albeit at high cost and often with negative impacts on the environment and sometimes on human health and livelihood.”).

vital ecosystems.³ IWRM aims to integrate relations between surface water and groundwater; quantity and quality; water systems and land use; water and stakeholder interests; and between water institutions.⁴ Since the late 1970s, IWRM has been included in several international declarations, for example: the Rio and Johannesburg Summits; international soft-law instruments like the Dublin Statement on Water and Sustainable Development; and international scientific forums such as the World Water Forums. This has made IWRM part of the broader sustainable development approach.⁵ The United Nations also recognized the importance of IWRM by passing Resolution 10967, making access to clean and safe water a human right.⁶ In practice, however, the legislative water framework, investments in water infrastructure, stakeholder participation, and the use of planning and assessment tools are not targeted at sustainable development per se.⁷

The International Union for Nature Conservation (IUCN)—a global environmental non-governmental organization—endeavors to make IWRM more sustainable through its Water Program.⁸ IUCN was founded in 1948 and today has more than 1,200 governmental and non-governmental member organizations. It is governed by a Council elected by member organizations every four years at the IUCN World Conservation Congress. The Water and Nature Initiative (WANI) is a core element in this program. WANI was launched in 2000 with the explicit goal of implementing IWRM using an ecosystem approach within water basins.⁹ During the first phase, from 2001–2008, WANI featured a series of demonstration projects in twelve river basins in South-East Asia, Central America, and Africa.¹⁰

3. *Id.*

4. JEROEN WARNER, *MULTI-STAKEHOLDER PARTICIPATION PLATFORMS FOR INTEGRATED CATCHMENT WATER MANAGEMENT 2* (2007).

5. Roberto Lenton & Mike Müller, *Introduction to INTEGRATED WATER RESOURCES MANAGEMENT IN PRACTICE: BETTER WATER MANAGEMENT FOR DEVELOPMENT 1, 5-8* (2009); Olli Varis et al., *Integrated Water Resources Management Plans: The Key to Sustainability?* in *MODERN MYTHS OF THE MEKONG* 173, 173 (2008).

6. U. N. EDUC., SCIENTIFIC & CULTURAL ORG., *WATER: A SHARED RESPONSIBILITY. – THE UNITED NATIONS WORLD WATER DEVELOPMENT REPORT 1,3* (2nd ed. 2006).

7. Lenton & Muller, *supra* note 5 at 8–9.

8. Int'l Union for Conservation of Nature, *About the Water Programme*, IUNC.ORG, http://www.iucn.org/about/work/programmes/water/wp_about_water_prog/ (last updated Sept. 5, 2012).

9. IUCN, *WORLD WATER VISION* (2003), Int'l Union for Conservation of Nature, *About the Water Programme*, IUNC.ORG, http://www.iucn.org/about/work/programmes/water/wp_our_work/wp_our_work_initiatives/wp_our_work_wani/ (last updated July 9, 2012).

10. IUCN, *WORLD WATER VISION* (2003); *see also* Int'l Union for Conservation of Nature Water & Nature Initiative, *Project Results*, WATERANDNATURE.ORG, <http://www.waterandnature.org/en/results/project-results> (last visited Feb. 17, 2013).

This paper reviews the learning experiences of IUCN with water management reforms in the Senegal River Basin in West-Africa during this first phase. This basin is a valuable case study because it faces tremendous social, economic and ecological problems due to unsustainable water management that sought to artificially control the availability of water to the basin and artificially prevent salt water from entering the Senegal River basin.¹¹ This article will demonstrate how IUCN has contributed to water management reforms in the basin. Furthermore the article will draw lessons for water management reforms in a broader sense by examining the Senegal River Basin as a case study for the effectiveness of Phase 1 of the IUCN's WANI initiative.

Part II characterizes the hydrological and political situation in the Senegal River Basin. Part III describes the water basin management history since the early 1960s—when the riparian countries became independent from France and started to seek cooperation. Part IV addresses WANI—the strategies that WANI has used and their effectiveness in the Senegal River basin. This section is based on primary and secondary field information.¹² Part V discusses the role of IUCN in IWRM in the Senegal River Basin's reform and the lessons that can be learned for water management reforms in other countries.

II. INTRODUCTION TO THE BASIN

The Senegal River flows for 1,800 kilometers from Guinea, through Mali, across the arid Sahel region—forming the border between Senegal and Mauritania—towards the Atlantic Ocean (Figure 1). The river's flow depends primarily on upstream rainfall in the Fouta Djallon Mountains in Guinea (about 2000 mm/year).¹³ The basin covers a surface area of about 300,000 square kilometers.¹⁴ The region has a distinct hot and rainy season with sometimes extensive flooding from June–July to October–November.¹⁵ In years of high rainfall as much as 5,000 square

11. IUCN, *WORLD WATER VISION* (2003); See Int'l Union for Conservation of Nature Water & Nature Initiative, *Senegal River Basin*, WATERANDNATURE.ORG, <http://www.waterandnature.org/en/results/wani-basins/senegal-river-basin> (last visited Feb. 17, 2013).

12. IUCN, *WANI SYNTHESIS: TECHNICAL SUMMARIES* (2008); See generally FRANS M. SMITH & M. CARTIN, *INTERNATIONAL UNION FOR CONSERVATION OF NATURE AND NATURAL RESOURCES, WATER VISION TO ACTION: CATALYSING CHANGE THROUGH THE IUCN WATER AND NATURE INITIATIVE* (2011), available at http://cmsdata.iucn.org/downloads/final_wani_results_report_lr.pdf.

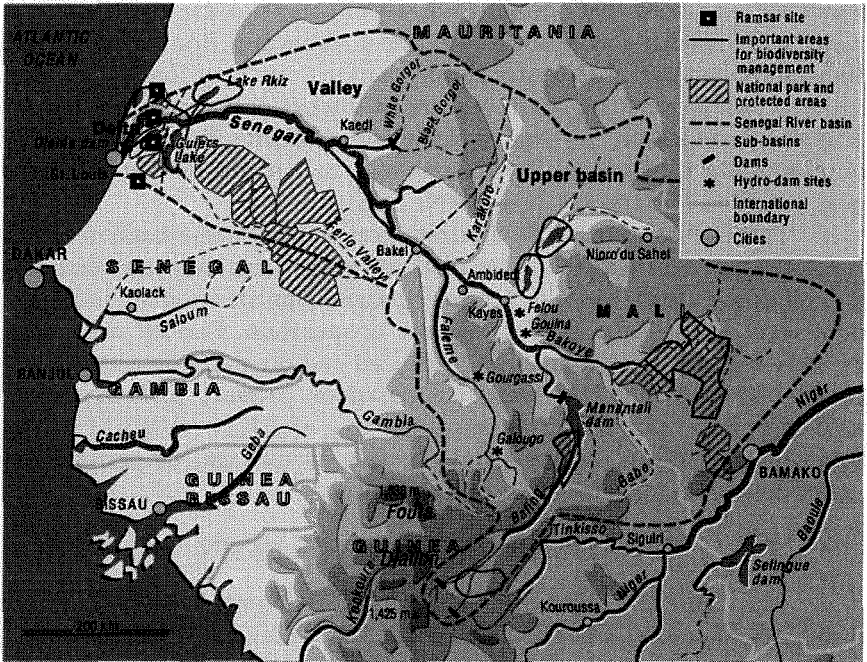
13. DAVID FINGER & CRISTIAN TEODORU, *CASE STUDY SENEGAL RIVER 4* (2003), available at <http://fingerd.jimdo.com/publications/>.

14. *Id.* at 3.

15. *Id.* at 4.

kilometers can be inundated.¹⁶ The remainder of the year is dry and hot.¹⁷

Figure 1. Basin map. Source: OMVS (2003).



The delta near the Atlantic Ocean contains important wetlands, including four Ramsar sites.¹⁸ The National Park Djoudj (160 square kilometers) was established in 1971 and is one of the most important bird sanctuaries of the world.¹⁹ The park is famous for pelicans, flamingos and migrating birds from Europe.²⁰ The Bassin du Ndiel (100 square

16. *Id.*

17. *Id.*

18. Ramsar Wetlands Int'l, *Ramsar Sites Information Service*, RAMSAR.WETLANDS.ORG, <http://ramsar.wetlands.org> (follow "Ramsar Sites Database" hyperlink; search "Country" for "Senegal") (last visited Feb. 17, 2013). Ramsar sites are protected under the Convention on Wetlands of International Importance, called the Ramsar Convention (Feb. 3, 1971).

19. See Ramsar Wetlands Int'l, *Ramsar Information Sheet: Djoudj*, RAMSAR.WETLANDS.ORG, <http://ramsar.wetlands.org/Database/SearchforRamsarsites/tabid/765/Default.aspx> (search "Country" for "Senegal"; then follow "Ramsar Information Sheets and Maps" hyperlink next to "Djoudj"; then follow "Most Recent Ramsar Information Sheet" hyperlink) (last visited Feb. 17, 2013).

20. *Id.* at ¶ 22.

kilometers) was established in 1977 and is also important for migrating birds.²¹ The Guembeul National Reserve (7.2 square kilometers) was established in 1983 and is known for the protection of Sahelian mammals and reptiles.²² The Parc National du Diawling (156 square kilometers) in Mauritania was established in 1994 and is an important wetland for birds, protecting pelicans, black storks and flamingos.²³ All of these important national parks fall within the Senegal River Basin.

About 3.5 million people live in the Senegal River Basin.²⁴ The basin population is multi-ethnic with, among others, Peuls, Toucouleurs, Soninkes, Malinkes, Bambaras, Wolofs, and Moors living there.²⁵ Eighty-five percent of the basin's inhabitants live near the river and depend on it for their livelihoods by fishing, farming, and livestock breeding.²⁶ Many migrate from these rural areas to large cities in the region and to Europe to financially support their family members who remain in the villages.²⁷ Some return during the rain season for seasonal work.²⁸ As discussed below, the ethnic diversity in the Senegal River Basin caused water conflicts after two major dams were built in the basin.

The water management of the Senegal River Basin is controlled by the *Organisation pour la Mise en Valeur de Fleuve Senegal* (OMVS).²⁹ Representatives from the four riparian states in the basin—Senegal, Mali, Guinea, Mauritania—have a seat on OMVS.³⁰ The political situation differs between these countries. In 2008 (when this study took place), Sene-

21. See Ramsar Wetlands Int'l, *Ramsar Site Summary Description: Bassin du Ndiel*, RAMSAR.WETLANDS.ORG, <http://ramsar.wetlands.org/Database/SearchforRamsarsites/tabid/765/Default.aspx> (search "Country" for "Senegal"; then follow "Summary Description" hyperlink next to "Bassin du Ndiel") (last visited Feb. 17, 2013).

22. See Ramsar Wetlands Int'l, *Ramsar Site Summary Description: Gueumbeul*, RAMSAR.WETLANDS.ORG, <http://ramsar.wetlands.org/Database/SearchforRamsarsites/tabid/765/Default.aspx> (search "Country" for "Senegal"; then follow "Summary Description" hyperlink next to "Gueumbeul") (last visited Feb. 17, 2013).

23. See Ramsar Wetlands Int'l, *Ramsar Site Summary Description: Parc National du Diawling*, RAMSAR.WETLANDS.ORG, <http://ramsar.wetlands.org/Database/SearchforRamsarsites/tabid/765/Default.aspx> (search "Country" for "Mauritania"; then follow "Summary Description" hyperlink next to "Parc National du Diawling") (last visited Feb. 17, 2013).

24. Margaret J. Vick, *The Senegal River Basin: A Retrospective and Prospective Look at the Legal Regime*, 46 NAT. RESOURCES J. 211, 212 (2006).

25. See Virpi Lahtela, *Managing the Senegal River: National and Local Development Dilemma*, 19 INT'L J. WATER RESOURCES DEV. 279, 282, no. 2 (2003).

26. Vick, *supra* note 24.

27. See Lahtela, *supra* note 25 at 288.

28. Finger & Teodoru, *supra* note 13.

29. Senegal River Basin Dev. Auth., *Objectives of the OMVS*, OMVS.ORG, www.omvs.org/fr/omvs/objectifs.php (last visited Feb. 18, 2013).

30. Senegal River Basin Dev. Auth., *OMVS Member States*, OMVS.ORG, www.omvs.org/fr/omvs/membres.php (last visited Feb. 18, 2013).

gal and Mali, both electoral democracies, were considered free countries regarding political rights and civil liberties.³¹ Mauritania, also an electoral democracy, was considered partly free though and Guinea, not an electoral democracy, was considered not free.³² Concomitantly, one can expect differences between the countries with respect to institutional capacities, strength of the civil society, and the degree of participation in water management.³³ The next section details these problems from a historical perspective.

III. HISTORICAL DEVELOPMENTS AND FUTURE CHALLENGES

To better understand the water management challenges in the Senegal River Basin this section first describes the role of the water dams and related social and environmental concerns. Next, this section explains how the Senegal River Basin Water Charter aimed to address these concerns, and how a lack of participation prevented an effective implementation of the Charter.

A. Building the Dams

When the four riparian countries in the Senegal River Basin gained independence from French colonial rule in 1962 they started to seek cooperation.³⁴ In 1963, these countries signed the Bamako Convention for the Development of the Senegal River Basin.³⁵ This Convention declared the Senegal River to be an international river and established the Interstate Committee to oversee its development.³⁶ The Interstate Committee ruled that the four basin states would have freedom of navigation and that no individual state could utilize the waters solely for its own purposes.³⁷ In 1968, the Labé Convention created the Organization of the Boundary States of the Senegal River (*Organisation des Etats Riverains de Sénégal*, OERS) to replace the Interstate Committee.³⁸ It had an

31. Freedom House, *Freedom in the World 2008*, freedomhouse.org, <http://www.freedomhouse.org/report/freedom-world/freedom-world-2008/> (follow "Country Reports" hyperlink; then follow "By Statutes" hyperlink) (last visited Feb. 18, 2013).

32. *Id.*

33. Lahtela, *supra* note 25 at 288.; See generally MARINA S. OTTAWAY, *DEMOCRACY CHALLENGED: THE RISE OF SEMI-AUTHORITARIANISM* (2003).

34. UNITED NATIONS, *OMVS, Senegal River Basin, Guinea, Mali, Mauritania, Senegal, in THE 1ST UN WORLD WATER DEVELOPMENT REPORT: WATER FOR PEOPLE, WATER FOR LIFE*, 456 (2003).) [hereinafter *UN Water Development Report*].

35. *Id.*

36. *Id.* at 457.

37. Margaret J. Vick, *The Senegal River Basin: A Retrospective and Prospective Look at the Legal Régime*, 46 NAT. RESOURCES J. 211, 212 (2006).

38. *UN Water Development Report*, *supra* note 34, at 456.

ambitious mandate that not only extended to river projects, but to all economic development in the region, and even to military matters.³⁹

The OERS collapsed in the early 1970s because of its broad scope, its difficulties financing the water infrastructure, and the withdrawal of Guinea from its membership.⁴⁰ In 1972, the lower riparian countries of Senegal, Mali, and Mauritania decided to enter into two new conventions, replacing the previous ones. The first convention, the Status Convention related to the Status of the Senegal River, provided freedom of navigation and collaboration on the use and development of the river.⁴¹ The second Convention established the Organization for Development of the Senegal River (*Organisation pour la Mise en Valeur de Fleuve Senegal*, OMVS).⁴² The headquarters of this organization is still in Senegal's capital, Dakar.⁴³ Although both conventions scaled down the ambitious goals of Labé Convention of 1968, the new convention gave OMVS unusual power regarding river management. For example, the OMVS decided to construct the Diama and Manantali Dams at the first meeting in 1972 to improve the water management of the Senegal River.⁴⁴ During this meeting other important decisions were made: to improve the port at Saint Louis in Senegal; to create a river port at Kayes in Mali; and to improve the river for navigation, including canalization.⁴⁵

A third agreement, the Convention Relating to the Status of Common Works was concluded in 1978.⁴⁶ This Convention states "the rights and obligations of the States joint owners are founded on the principles of equality and equity."⁴⁷ This legal regime was revolutionary because Member States relinquished to OMVS their sovereign control, their ownership of the land, and the river works.⁴⁸

39. ARIEL DINAR ET AL., BRIDGES OVER WATER, 170 (2007); Vick, *supra* note 37, at 228.

40. Vick, *supra* note 37, at 211.

41. Convention Relative au Statut du Fleuve Senegal (Convention on the Status of the Senegal River), Mar. 11, 1972, available at <http://faolex.fao.org/docs/texts/mul16004.doc>.

42. OMVS Convention, Convention Portant Creation de L'Organisation Pour la Mise en Valeur de Fleuve Senegal (Convention establishing the Organization for the Development of the Senegal River – OMVS), Mar. 11, 1972 (modified by the Convention portant Amendement du 17 Novembre 1975), available at <http://faolex.fao.org/docs/texts/mul16003.doc>.

43. OMVS, <http://www.omvs.org>. (last visited Feb. 20, 2012).

44. Vick, *supra* note 37, at 230.

45. *Id.*

46. UN Water Development Report *supra* note 34, at 456.

47. Vick *supra* note 37, at 215.

48. Undala Alam, et al., *The Benefit-Sharing Principle: Implementing Sovereignty Bargains on Water*, POL. GEOGRAPHY 90, 96 (2009); ARIEL DINAR, ET AL., *supra* note 39, at 170; Vick *supra* note 37, at 215.

The 1972 Conventions were some of the first agreements in the world for comprehensive river management.⁴⁹ Since the 1950s, Senegal had attempted to introduce large-scale irrigated rice-farming in the valley.⁵⁰ The severe drought in 1972 provided the right moment for Senegal, a regional leader, to convince the other countries to remake the valley and pass these conventions.⁵¹ The progressive 1972 Conventions were also a means to convince the international community and donors of the benefits of rice-farming—whether it be for pragmatic or ideological reasons, or a combination of both. Other authors argue that after independence from France the idea of pan-African unity—laid down in the post-independence constitutions of the riparian countries—was decisive in the countries' decisions regarding the institutional and physical infrastructure constructed on the Senegal River.⁵²

The Conventions made it possible for OMVS to build one of the first major river works, the anti-salt Diama Dam at the mouth of the Senegal River at St. Louis. This dam, built between 1981 and 1986, was designed to block saltwater from entering the delta, making irrigated agriculture possible.⁵³ During the drought years saltwater would penetrate over 100 km inland, rendering the entire delta unsuitable for agriculture.⁵⁴

Between 1982 and 1988, the OVMS built a storage dam in the remote area near Manantali in Western Mali on the Bafing, the main tributary of the river supplying about half the annual flow.⁵⁵ The dam was designed to make year-round irrigation and navigation up to Mali possible and to produce hydropower. Production of hydropower started only in 2001 when turbines were installed (with a loan from the World Bank).⁵⁶ The Manantali Dam has a capacity of 800 Gigawatt-hours for nine out of ten years, it is the region's largest hydroelectric power

49. Vick, *supra* note 37, at 214.

50. Olli Varis et al., *supra* note 5; Adrian Adams, *Social Impacts of an African Dam: Equity and Distributional Issues in the Senegal River Valley*, 1 (2000) (Contributing paper to the World Commission on Dams) [hereinafter *Social Impacts of an African Dam*].

51. Mamadou Mactar Sylla, *The Role of Basic Community Organizations in the Management of the Natural Resources of a Transboundary Water Basin - The Example of the Local Coordination Committees of the Senegal River Development Organization*, 35–36 in *STAKEHOLDER PARTICIPATION IN TRANSBOUNDARY WATER MANAGEMENT: SELECTED CASE STUDIES* (Anton Earle and Daniel Malzbender eds., 2006).

52. Undala Alam et al., *supra* note 48, at 94.

53. David Finger & Cristian Teodoru, *The Senegal River Case Study*, Seminar on Science and Politics of International Freshwater Management ETH Zurich, 10 (Nov. 2003), available at <http://fingerd.jimdo.com/publications/>.

54. *Id.* at 6.

55. *Id.* at 7.

56. FRED PEARCE, *THE DAMMED: RIVERS, DAMS, AND THE COMING WATER CRISIS* (1992).

source.⁵⁷ The total costs of the dam was 800 million U.S. dollars, borrowed mostly from Saudi Arabia, Abu Dhabi, and Kuwait.⁵⁸

Both dams were inaugurated in 1992. During this event, the President Diouf of Senegal declared, “[t]oday, I am convinced that Africa will win its fight.”⁵⁹ indicating how much the authorities were focused on building dams to overcome the problems in the Senegal River Basin. For them, the dams were the fulfillment of a dream: “[t]he West Africans wanted to build their version of the High Aswan to master the river and to remake the valley.”⁶⁰ In realizing this dream OMVS did its homework. It was reported that in 1976 more than 9,000 reports, articles, and text had been written about the basin with subjects ranging from hydrology, agricultural development, ecology and climatology.⁶¹ These included feasibility studies for the dams supported by the U.N. Development Programme and an environmental analysis funded by the U.S. Agency for International Development (USAID).⁶²

It does not appear, however, that social and environmental concerns were anticipated. OMVS was praised as a progressive multilateral organization. During the 1970s comprehensive environmental assessments were not common, which gave OMVS ample room to realize the dams.⁶³ When the dams were built, no comprehensive assessments were carried out, no alternatives were considered, and no protesters—scholars, NGO workers, and journalists—were heard.⁶⁴ Yet, soon after the dams were completed social and environmental problems arose.

B. Social and Environmental Concerns

While the dams initially held out great hope, they also created social-economic and environmental problems. These related to the change of the basin’s flood plain ecology from a salty and brackish aquatic environment to low-flow perennial freshwater environment.⁶⁵ Social-economic problems arose between foreign wealthy farmers who established large-scale irrigation farms, and poorer local farmers. Only

57. *Id.*

58. *Id.* at 252.

59. *Id.*

60. *Id.* at 252–53.

61. Vick, *supra* note 37, at 222.

62. *Id.* at 222–23.

63. *Id.*

64. *Social Impacts of an African Dam*, *supra* note 50, at 3; Adrian Adams, *A Grassroots View of Senegal River Development Agencies: OMVS, SAED* (Mar. 7, 2000), www.internationalrivers.org/resources/a-grassroots-view-of-senegal-river-development-agencies-omvs-saed-2013 [hereinafter *Senegal River Development Agencies*].

65. *UN Water Development Report*, *supra* note 34, at 452, 454, 459.

foreign farmers could get loans, sometimes disappearing after acquiring the money.⁶⁶

The arrival of newcomers also resulted in violent ethnic conflicts. In 1989, nomadic Mauritanian herdsman killed sedentary Senegalese farmers triggering ethnic conflicts.⁶⁷ When Mauritania shopkeepers in Senegal were killed, tens-of-thousands Mauritians fled from Senegal to Mauritania.⁶⁸ Also, in Mauritania's capital, Nouakchott, hundreds of black people were killed, leading 70,000 flood-recession farmers to flee from the Mauritanian side of the river to Senegal.⁶⁹

The dams also created environmental health problems. Soon after completion of the Diama Dam people downstream along the river suffered a dramatic increase in waterborne diseases—such as intestinal parasite infections, malaria and cholera—because of the newly created pools of freshwater.⁷⁰ Waterborne parasites also infested livestock, resulting in an overall decrease in meat and milk production for the region.⁷¹

The dams also eliminated traditional flood recession agriculture on the flood plain.⁷² The local population practiced recession agriculture for centuries before the dam was built.⁷³ This is a low-cost production system based on natural irrigation and fertilization, where crops (e.g. sorghum, beans, and melons) are cultivated on the receding flood.⁷⁴ At the same time, livestock was temporarily moved away from the flood-plain to the highland pastures.⁷⁵ The introduction of modern irrigation for rice production and vegetable production—like tomatoes and onions—put an end to these practices. Although the farmers were promised the release of water from the Manantali Dam during the growing season, the engineers at the dams were reluctant to do so, and not capa-

66. Finger & Teodoru, *supra* note 53.

67. A. Degeorges & B.K. Reilly, *Dams and Large Scale Irrigation on the Senegal River: Impacts on Man and the Environment*, 63 INTERNATIONAL JOURNAL OF ENVIRONMENTAL STUDIES no. 5, 527, 642 (2006); Finger & Teodoru, *supra* note 13, at 9.

68. Degeorges & Reilly, *supra* note 67, at 642; Finger & Teodoru, *supra* note 13, at 9.

69. Degeorges & Reilly, *supra* note 67, at 642; Finger & Teodoru, *supra* note 13, at 9.

70. Vick, *supra* note 37, at 217; Finger & Teodoru, *supra* note 13, at 12.

71. Vick, *supra* note 37, at 218; Finger & Teodoru, *supra* note 13, at 12.

72. See Nina Larsen Saarnak, *Flood Recession Agriculture in the Senegal River Valley*, 103 *Danish Journal of Geography*, no. 1, (2003); Vick, *supra* note 37, at 218; see *Social Impacts of an African Dam*, *supra* note 50.

73. See Saarnak, *supra* note 72; Vick, *supra* note 37, at 218; see *Social Impacts of an African Dam*, *supra* note 50.

74. Saarnak, *supra* note 72, at 102; Vick, *supra* note 37, at 218; see *Social Impacts of an African Dam*, *supra* note 50.

75. See Saarnak, *supra* note 72, at 102; Vick, *supra* note 37, at 218; *Social Impacts of an African Dam*, *supra* note 50, at 1.

ble of handling large dams this way.⁷⁶ Water was released in September—called ‘natural floods’—washing away crops before they could be harvested.⁷⁷

Mismanagement of the river brought along new problems. These included degradation of native fish stocks available for independent fisherman (although the catch of other freshwater fish increased); loss of pasture; loss of wood gathering for charcoal and construction from acacia forests; and the disappearance of wetlands.⁷⁸ Moreover, irrigated rice projects were abandoned, causing further desertification in the already arid river valley.⁷⁹ Needless to say, local farmers are the losers in this game of great interests and power; and the bureaucracies, city-dwellers, foreign investors, and companies being the winners.

C. The Senegal River Basin Water Charter

During the 1990s, local farmers and fisherfolk of the Senegal river started to contest the top-down river management approach of OMVS.⁸⁰ Jaabé So and Adrian Adams led protests against the OMVS.⁸¹ Jaabé So was a former seaman who returned to his country in 1973 and organized farming groups in most of the riverside villages.⁸² Adrian Adams was an American anthropologist and writer who became the eloquent voice of the local people in their protests against OMVS.⁸³ She depicted the situation in Senegal River basin as a tragedy in the making, stating “[o]ne may recall the protagonists at the close of the first act: State bureaucracies triumphantly in the ascendant, with donors (and attendant companies) discreetly at their side; the people of the Valley a silent chorus; and dam critics, like Cassandra, warning in vain.”⁸⁴

76. Pearce, *supra* note 56.

77. *Id.*; A.M. Sène, S. Bonin, & O. Soubeyran, *Watershed Regulation and Local Action: Analysis of the Senegal River Watershed Management by a Regional Organisation and Public Participation*, 4 *Hydrology and Earth System Science Discussion*, 1917 (2007).

78. Vick, *supra* note 37, at 218–19.

79. H. D. Venema & E. J. Schüller, *Water Resources Planning for the Senegal River Basin*, 20 *WATER INTERNATIONAL*, 61, 64 (1991).

80. See *Social Impacts of an African Dam*, *supra* note 50, at 17; *Senegal River Development Agencies*, *supra* note 64.

81. See *Social Impacts of an African Dam*, *supra* note 50; See *Senegal River Development Agencies*, *supra* note 64.

82. *Social Impacts of an African Dam*, *supra* note 50; *Senegal River Development Agencies*, *supra* note 64.

83. *Social Impacts of an African Dam*, *supra* note 50; *Senegal River Development Agencies*, *supra* note 64.

84. *Social Impacts of an African Dam*, *supra* note 50, at 6.

In 1992, a group of farmers and pastoralists associations issued a manifesto which, among other things, asked the administrative authorities:

In cooperation with peasant farmers' organizations, to regulate the artificial flood in such a way as to favor flood-recession farming and the reproduction of River fish. . . In cooperation with peasant farmers' organizations, to evolve a land grant and development policy that gives priority, first to the present and future needs of River inhabitants, then to the present and future needs of the inhabitants of the rest of Senegal, and which takes into account all possibilities for developing the land, not just irrigation.⁸⁵

Initially, the protesters were not heard and eventually attacked in the press by the authorities when they continued their protests in the following years.⁸⁶ Towards 1997, however, things changed. In that year, OMVS created the Environment Impact Mitigation and Monitoring Program (*Programme d'Atténuation et de Suivi des Impacts sur l'Environnement*, PASIE).⁸⁷ PASIE received financing from the World Bank, the African Development Bank, France, and Canada.⁸⁸ One of its six subprograms was the Monitoring, Coordination and Communication Program. It was through this specific program that NGOs and local populations were given a voice in the management of the Senegal River. It appears believe the donors convinced OMVS to give a voice to the NGOs and local population. Local populations found their voice through two coordination committees: the Local Coordination Committees (CLC), and the National Coordination Committee (CNC).⁸⁹ The CLC consisted of local communities, associations and professional cooperatives, representatives of the associations of young persons and women, NGOs, and representatives of administrative authority.⁹⁰ The CNC consisted of concerned ministries, professional organizations, NGOs and the representatives of the CLCs.⁹¹ Both the CNCs and CLCs meet before the general meeting of the Permanent Water Commission (Commission des Eaux, CPE), an advisory committee of OMVS.⁹²

85. *Social Impacts of an African Dam*, *supra* note 50, at 17.

86. Finger & Teodoru, *supra* note 13.

87. *Id.* at 6.

88. *Id.*

89. Sène, Bonin & Soubeyran, *supra* note 77, at 1924.

90. *Id.* at 1933.

91. *Id.*

92. *See id.*

The local protests led lawyers from Mali and Senegal to write the Senegal Water Charter.⁹³ The three states approved this charter in May, 2002 (*Charte des Eaux du Fleuve Sénégal*).⁹⁴ By that time, Senegal and Mali had become electoral democracies, whereas Guinea and Mauritania remained ruled by one party. The charter sought to allocate water equitability among the different sectors—principally agriculture, fishing, navigation, and power production—to protect the environment, and to enhance public participation.⁹⁵ The charter contained a unique provision intended to protect locals against competing water demands:

The guiding principles of any distribution of the River's water will guarantee to the populations of the riparian States the full enjoyment of the resource, with respect for the safety of the people and the works, as well as the basic human right to clean water, in the perspective of sustainable development.⁹⁶

The charter is partly due to the work of the international community as it is based on several international declarations. Among the general principles in these declarations is the principle of public participation demonstrated by: Principle 10 of the Declaration of Rio on Environment and Development (1992);⁹⁷ Principle 6 of the Aarhus Convention (1998);⁹⁸ and Principle 24 of the Convention on the Law of the Non-Navigational Uses of International Watercourses (1997).⁹⁹ By incorporating these progressive principles of law, the Water Charter has become a leading example of cross-border integrated water management.

On top of PASIE and the Water Charter, the international community further supported the OMVS reforms. Under the leadership of the World Bank, a new river basin project was started with a major contribution from the Global Environment Facility (GEF).¹⁰⁰ The project aimed at

93. Interview with Jean-Marc Garreau, Regional Programme Coordinator of IUCN in West Africa, and Amadou Matar Diouf, IUCN representative in Senegal (March 18, 2009).

94. Water Charter, *Charte des Eaux du Fleuve Sénégal*, (18 May 2002), available at http://lafrique.free.fr/traites/omvs_200205.pdf.

95. *Id.*

96. *Id.*

97. Report of the United Nations Conference on Environment and Development, (Rio de Janeiro, June 3-14, 1992), Annex I, Rio Declaration on Environment and Development, available at <http://www.un.org/documents/ga/conf151/acconf15126-4.htm>.

98. Convention on Access to Information, Public Participation in Decision-Making, and Access to Justice in Environmental Matters, Aarhus, Denmark, June 25, 1998, available at <http://www.unece.org/fileadmin/DAM/env/pp/documents/cep43e.pdf>.

99. G.A. Res. 51/229, ¶24, U.N. Doc. A/RES/51/229 (July 8, 1997).

100. The Global Environment Facility (GEF) is an independent financial organization providing grants to developing countries and countries with economies in transition in support of the global environmental agenda. GEF brings together 182 member govern-

institutional capacity building, data and knowledge management (including monitoring), strategic planning, carrying out pilots, and the enhancement of public participation and awareness.¹⁰¹ The GEF project built upon, and further supported, the CLCs functioning.¹⁰² At first glance the Water Charter thus enhanced public participation.

D. Lack of Public Participation

In practice, public participation still remains a concern.¹⁰³ This is partly an institutional problem. First, all members of the Council of Ministers are appointed by their governments, and are not accountable to an electorate.¹⁰⁴ Second, the Water Charter confirms that decisions of the Council of Ministers are not subject to review. Third, local groups are only represented in advisory bodies as observers, and only have the right to be informed and to issue their opinion on programs already developed and applied by permanent bodies. This form of participation is very restricted. In the specific case of the CPE, the authors conclude that it favors big users over small users in the allocation of water and keeps local organizations away from decision-making in water management.¹⁰⁵

There are a few more obstacles for participation. First, there is no detailed plan for the implementation of the Water Charter. Second, local populations lack sufficient education, information, and training to participate.¹⁰⁶ For example, farmers are not informed about the quantities of water expected to fall, the periods of rainfall, and artificial flood. Farmers are then confronted with sudden and unpredictable floods that devastate seeding.¹⁰⁷

ments, international institutions, nongovernmental organizations and the private sector. GLOBAL ENVIRONMENT FACILITY, *What is the GEF*, <http://www.thegef.org/gef/whatisgef> (last visited Feb. 17, 2013).

101. WORLD BANK., SENEGAL RIVER BASIN WATER AND ENVIRONMENTAL MANAGEMENT PROJECT: GLOBAL ENVIRONMENT FACILITY, ii, 5, (2001), available at <http://www.thegef.org/gef/node/920>.

102. M. M. Sylla, The Role of Basic Community Organisations in the Management of the Natural Resources of a Transboundary Water Basin—The Example of the Local Coordination Committees of the Senegal River Development Organisation, in *STAKEHOLDER PARTICIPATION IN TRANSBOUNDARY WATER MANAGEMENT—SELECTED CASE STUDIES* 35, 39 (Anton Earle & Daniel Malzbender eds.) (2006).

103. A.M. Sène, et al., *Watershed Regulation and Local Action: Analysis of the Senegal River Watershed Management by a Regional Organisation and Public Participation*, 4 *HYDROLOGY & EARTH SYS. SCIS. DISCUSSIONS* 1917, 1922 (2007).

104. Vick, *supra* note 37, at 232.

105. Sène, *supra* note 103, at 1933.

106. Sylla, *supra* note 102, at 122–24.

107. Sène, *supra* note 103, at 1935.

Yet, as the OMVS concluded in a detailed analysis of the CLCs, the CLCs (within the GEF framework) have become a permanent structure and an “undeniable potential for mobilizing and coordinating the monitoring of environmental activities and for carrying out projects within an atmosphere of sharing and participation with the population.”¹⁰⁸ It was in this atmosphere that IUCN stepped into the basin with WANI.

IV. THE WATER AND NATURE INITIATIVE (WANI)

The IUCN Water and Nature Initiative (WANI) is an IUCN effort to bring sustainable IWRM into practice. This section describes the strategies that this program has used and how effective these strategies were in the Senegal River Basin. For the Senegal River basin two strategies have been employed: Dialogue and Policy Framing.¹⁰⁹

A. Dialogue

In the Senegal River Basin, the Dialogue strategy brought together communities, NGOs, OMVS, academia, and research institutions to develop a common understanding on stakes and participation strategies. No such efforts had been made since the trans-boundary cooperation began in the early 1960s. The dialogue started in 2005 with three series of knowledge sharing workshops, first between research institutions in Mali, Mauritania, Senegal and Guinea; second between civil society organizations; and third with OMVS Local Coordination Committees (CLC, see above).¹¹⁰ A follow-up regional conference was organized with scientists from universities and research institutions in Mali, Mauritania, Senegal and Guinea.¹¹¹ This conference was held on April 16–17, 2007 in Dakar, Senegal.¹¹² During the conference, OMVS and the scientific community prepared a Memorandum of Understanding.¹¹³ It included areas of interventions and suggestions on how to develop collaboration.¹¹⁴ Next, strategies were developed for an integrative study of the basin and an environmental education program to learn about trans-boundary in-

108. Sylla, *supra* note 102, at 44.

109. M. SMITH & M. CARTIN, INT’L UNION FOR CONSERVATION OF NATURE, WATER VISION TO ACTION: CATALYZING CHANGE THROUGH THE IUCN WATER & NATURE INITIATIVE, 45 (2011), available at http://cmsdata.iucn.org/downloads/final_wani_results_report_lr.pdf.

110. IUCN, WANI SYNTHESIS: TECHNICAL SUMMARIES (2008); Smith, *supra* note 109, at 30.

111. IUCN, *supra* note 110; Smith, *supra* note 109, at 30.

112. IUCN, *supra* note 110; Smith, *supra* note 109, at 30.

113. IUCN, *supra* note 110; Smith, *supra* note 109, at 30.

114. IUCN, *supra* note 110; Smith, *supra* note 109, at 30.

terdependencies.¹¹⁵ Universities and research institutions that were previously unaware of what the other was doing at any given time benefited from the IUCN initiative.

Local communities and NGOs were also included in the Dialogue.¹¹⁶ IUCN helped local communities express their voice and organize themselves. Moreover, scientific knowledge and collaboration were used to prevent manipulation of the Dialogue.¹¹⁷ IUCN started with high ambitions to achieve its goal: it organized the Dialogue within OMVS institutional structure. There was, however, a potential pitfall in this strategy: decisions within OMVS are completely state-controlled and made by unanimity.¹¹⁸ Individual states were therefore in a position to block people's informed proposals within OMVS. For this reason IUCN also applied another strategy to make the Dialogue less informal: Policy Framing.

B. Policy Framing

Policy Framing is a strategy aimed at creating a concept, plan, or system for establishing national water policies. In the Senegal River Basin, this strategy aimed at implementing the 2002 Water Charter. This charter was based on several international declarations regarding public participation in IWRM.¹¹⁹ Initially the charter turned out to be a paper tiger because of the centralized decision-making process within OMVS. It was established in a top-down manner and initially unknown to the local communities, NGOs, civil society groups, scientists, business people, and even OMVS workers.¹²⁰ To inform them, IUCN organized workshops in each state, both at national and community level. The IUCN also empowered the CLCs.¹²¹ As explained above, the CLCs form the institutional framework for dialogue among stakeholders and with government. In theory they have a very important and wide-ranging responsibility in natural resource and community development; in practice their role was limited.¹²² As part of the Policy Framing strategy, IUCN endeavored to improve this situation by establishing action plans for the twenty-eight CLCs throughout the basin. These action plans de-

115. IUCN, *supra* note 110; Smith, *supra* note 109, at 25.

116. IUCN, *supra* note 110; Smith, *supra* note 109, at 30.

117. IUCN, *supra* note 110; Smith, *supra* note 109, at 30.

118. Sène, *supra* note 103, at 1931.

119. *Id.*

120. *Id.* at 1920–21.

121. IUCN, *supra* note 110; Smith, *supra* note 109, at 30.

122. Sène, *supra* note 103, at 1932–33.

scribed practical measures to implement the principles of the Water Charter in practice and were formally approved by OMVS.

Despite the recent efforts of the IUCN the program still must overcome more than thirty years of top-down approach of OMVS with little room for public participation. This has led to a strained relationship between OMVS and stakeholders, and local populations.¹²³ On the one hand, by encouraging public participation locals are able to claim their rights in IWRM. However, this is often not tolerable because the powerful elites are usually quick to stress the risk of instability that would generate if the local people claimed their rights.¹²⁴ For this reason, OMVS only wants to work together with “responsible and accountable” people from civil society; they don’t want protesters at their door.¹²⁵

On the other hand, the IUCN has had a positive effect on the relationship between OMVS and local populations.¹²⁶ IUCN encouraged stakeholders to share information, and helped communities and stakeholders to articulate their vision on the management of the water resources in the basin. As a result, OMVS began to recognize its weaknesses in addressing concerns of the riverside residents, and started improving its working methods. A recent example is the interview with OMVS representatives on public television. This was unique for an organization that usually works behind closed doors. All in all, the Water Charter helped the OMVS to draw closer to the public.

V. DISCUSSION

This final section discusses the role of IUCN in the legal reform of IWRM in the Senegal River basin and the functioning of government in the riparian states. Lessons are drawn for water management reforms in other countries.

A. Promoting Legal Reform in IWRM

The Senegal River case study shows a river basin which has been regarded for several decades by the international water lawmakers as a reference for innovation and development of advanced regulatory frameworks for riparian states. Since the first convention, the Bamako Convention in 1963, there have been top legal instruments that incorpo-

123. *Id.* at 1933–37.

124. Interview with Jean-Marc Garreau, Reg'l Programme Coordinator, IUCN W. Afr., & Amadou Matar Diouf, IUCN Representative, Senegal, in Istanbul, Turk. (March 20, 2009).

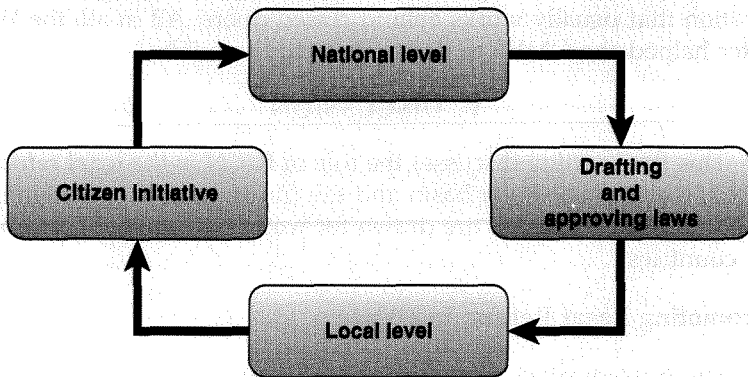
125. Interview with Jean-Marc Garreau, *supra* note 124.

126. IUCN, *supra* note 110.

rate the latest tools and principles available.¹²⁷ The most recent example is the 2002 Water Charter that is specifically based upon IWRM principles. Yet, in practice there is a clear contradiction between the text of the innovative legal instruments, and the commitment for implementation from the national and river authorities. This is not a surprise if we recall the differences between the countries in the basin with respect to institutional capacities, strength of the civil society, and the degree of participation in water management. Such a situation cannot be changed easily with simple assistance programs—like IWRM—from outside. Nevertheless, the Water Charter has been a vehicle for people to express their voice, to organize themselves and to articulate their vision on the management of the water resources towards OMVS.

Over the last few years there has been a virtual explosion of literature on international governance and law formation that arise from the activities and agreements of private actors, rather than from state controlled law-making in the form of treaty or custom.¹²⁸ This literature indicates effective legal reform can only become operative if it is inserted into a 'double fold' process (Figure 2). This process starts with tradi-

Figure 2. The double-fold process in law making.



tional top-down methods of drafting and passing laws—including treaties and conventions—and are complemented by private citizen initiatives at a local level, which can be understood as a bottom-up approach to law-making. In theory, this double fold process results in better implementation of a given framework—in this case IWRM—on the ground. The Senegal River case study showed that IWRM principles are

127. Christiana Ochoa, *The Relationship of Participatory Democracy to Participatory Law Formation*, 15 *IND. J. GLOBAL LEGAL STUD.*, 5, 8 (2008)

128. Ochoa, *supra* note 127, at 8.

not being delivered on the ground. This is due to an inadequate incorporation of substantive legal frameworks that is lacking sense and appropriation at the community and individual level.

Figure 2. The double-fold process in law making.

(Diagram provided by author).

One of the problems with the rule of law is the high rate of non-compliance, which can assumedly only be tackled at high enforcement costs. The double fold process of legal reform is now generally considered a preferred alternative because it enhances citizenship as explained below. However, since there are no general recipes for delivering a legal reform process, it is unclear whether the starting point should be the general framework or the bottom-up approach. In the Senegal River Basin this is not a problem because the legal framework—i.e. the 2002 Water Charter—is already in place and IWRM has become part of the national legal systems of all the signatory parties.

Ideally, the individuals of the society acknowledge and benefit from the legal instruments that are there for social development. At the same time, in a nonlinear process, the notions and local practices have already been taken into consideration when drafting the legal frameworks that will govern the people's activities. Citizenship compliance is enhanced because some of their behaviors have been incorporated into the norm. The norm formalizes, and at the same time enhances, those conducts which decision makers consider more beneficial for society. Ideally, citizens are encouraged to participate in the decision making process. Coherence in drafting transnational legal frameworks, national and local implementation, and citizen participation is crucial for an adequate and efficient application and implementation of legal frameworks.

Water management in the Senegal River Basin is far removed from this ideal situation. The process of implementing national and local norms that comply with international obligations has just begun. What does this mean for the NGOs like IUCN that are involved in water management? Donors often consider IWRM as something that can be quickly created by funding NGOs and training them in the techniques of lobbying the government, administering funds, and reporting to donors. The reality, however, is more subtle. Because it is needed to invest in long-term cooperation and trust, IUCN's real impact has been on the ground, creating new spaces for communication between the elites and local people. Because of the political nature of the organization their lobbying work has been very cautious, thereby also gaining the favor of the ruling

elite. If this can contribute to the strengthening of the voices of the communities for respecting the rule of law in their respective countries, that alone would be a huge victory—not only for the people but also for the State.

B. Looking Beyond IWRM to the Role of the State

The level of development and the political stability of a country depends on access to water. Water scarcity, internal conflicts linked to water usage, floods or epidemics are factors that could undermine the power and legitimacy of states. States should also protect their population against threats from population growth or climate change, by designing and developing policies, strategies and legislation related to the sustainable management of water. The latter co-exists with the states objective of maintaining the foundations and the structures of power.

An important step to guarantee the access to water, at the international level, is Resolution 10967 of the United Nations General Assembly. This Resolution recognized the access to safe and clean water as a human right. Senegal and Mali voted in favor of this Resolution while Guinea and Mauritania were absent during the deliberation. Senegal and Mali now have the international obligation to promote, protect and fulfill the right to access water in the trans-boundary basin. This obligation poses a challenge and an opportunity for Senegal and Mali: the effectiveness of the implementation of the right to water implies that the government and power elites grant to the general population a minimum of access to water in enough quantity and quality to assure their living standards. States are playing a dangerous card here because guaranteeing the human right to water empowers stakeholders and strengthens political structures. However, if those minimum standards are not respected, the state might be in jeopardy through rising levels of conflict, considering the irreplaceable nature of water.